

North Carolina
Department of Transportation

Transformation Management Team
Final Report

Volume Six:
Performance Metrics and
Management

VOLUME VI

Performance Metrics & Management

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A. Summary

The McKinsey diagnostic revealed that Department's performance management system was inadequate and was not suited for monitoring and reporting results and improving Departmental performance over time. Although there had been some implementation of performance management measures within business units, those efforts were not explicitly linked to NCDOT or other business unit priorities. NCDOT's ad hoc nature of generating performance indicators sometimes led to conflicting needs between units. Therefore, the Performance Metrics and Management Team was created as part of the Transformation effort to develop and introduce a department wide performance management system based on a set of metrics linked to strategic goals. The new PM system will allow NCDOT to monitor, report, and improve performance over time and meet its stakeholder commitments.

B. Key Objectives

The Performance Metrics and Management Team were tasked with:

- 1) Working with various Department business unit managers and staff to understand "what drives value" for the organization and individual business units.
- 2) Developing a set of high-level business metrics linked to NCDOT strategic goals that serve as the foundation of a "performance dashboard" for the Department.
- 3) Assisting Department managers with the development of business unit (BU) metrics that link to strategic objectives and that can, in turn, be used as guidelines for developing metrics for groups and individuals within units.
- 4) Devising a roll-out plan to guide the introduction of the new performance management system and develop a methodology for reporting on and managing to metrics.
- 5) Providing guidelines on how to iteratively adjust performance metrics as NCDOT strategic goals change over time.

C. Value Trees

One of the initial efforts of the Transformation Team was to develop departmental mission and goals that provides clarification of the Department's vision for the future. When properly cascaded throughout the organization, the mission and goals provide the Department with a strong strategic direction. Linking top managers' individual performance assessments to these same goals and developing a system of "metrics" or performance measurements for the top-level managers in the department, will allow

managers to measure each business unit's contributions to meeting the mission and goals.

In order to understand what drives value for the department, the Performance Metrics team developed a "High Level Value Tree" linked to the Department's mission and goals. These value drivers were prioritized and used to develop high level performance metrics which serve as key performance indicators for the overall health of the organization. The High Level Value Tree was further broken down to include the essential value drivers for each of the five goals. This value tree identifies the key indicators for success for the five goals.

D. Performance Metrics

Historically, the usage and applicability of performance metrics was varied across the divisions, branches, and units within the Department of Transportation. The performance metrics that existed had not been systematically tested for linkage to a single Department-wide mission statement and set of goals. In addition, NCDOT did not have a public facing "Executive Dashboard" reporting system that displayed certain high-level key metrics tied to a mission statement, goals and overall performance.

To meet the needs of becoming more accountable and results oriented, the Department reinvented its performance management system to become more result based and performance oriented. One of the first phases of this change was to adopt a uniform definition and understanding of "performance metrics" and to cascade key performance indicators throughout the organization based on the five goals and mission statement of the Department.

"Performance metric" is defined as a subject area of influence or control that is a measurable category of performance (such as fatalities, employee satisfaction, customer service, or project delivery). A performance metric includes three components: the performance measure or metric definition, a target, and a weight. A "performance measure" is defined as the standard metric definition or how the metric will be measured (such as number of fatalities per 100 million vehicle miles traveled, percent of customers that are satisfied with services, or percent of construction projects on schedule). The "target" is defined as the desired level of achievement for a given performance metric. The target is always expressed in a range. The "weight" is defined as the relative importance of the metric compared to the overall function of the business unit or individual duties. The weight is not necessarily correlated to the amount of time the metric should take to meet. The weight is always expressed as a percentage.

Performance metrics, aligned to each organizational goal, were initially adopted for the top leadership positions within the Department. These metrics were then cascaded through out their division, branches and business units, creating a top to bottom cascading effect of measurement systems to meet the agency goals.

As part of this process, a new employee performance evaluation system, titled the Performance Dashboard and Appraisal (PDA), was developed and implemented linking individual performance to business unit performance, and ultimately Department performance. Effective April 1, 2009, each employee will now be required to have up to

ten performance metrics identified on their individual performance management evaluation (on their PDA) that ties to meeting the organizational goals and business unit responsibilities.

To systematically develop and institute similar and equitable metrics across business units, focus groups were also established to develop metrics for similar job functions, such as administrative assistants, division engineers, transportation workers, etc. Focus groups were facilitated and metrics established for the majority of function within the Department. To assist this development process a document was created titled, guidelines for developing metrics. These guidelines outlined how to create metrics and how to begin the process. In summary, metrics can be created by thinking about four criteria:

1. Higher level metrics and goals
2. Position job descriptions and key responsibilities
3. Customer expectations
4. Processes

The development and implementation of performance metrics allows managers to measure each business unit's contributions to meeting the mission and goals, and meeting the overall mission of the department.

A structured performance metrics and management system within the Department of Transportation has:

- Empowered employees to manage toward clear targets and focus on outputs and outcomes of their work rather than inputs,
- Shown employees how their efforts fit in to the DOT's vision and goals and foster a better understanding and conviction of the NCDOT mission,
- Enhanced talent and skills among our employees by linking individual employee performance evaluations with the unit performance metrics and,
- Better organized and structured our business processes by establishing a formal procedure of status update meetings beginning at the unit level continuing on up to the Secretary and his staff with the purpose of reporting, reviewing, interpreting, and managing performance against the metric results.

E. Organizational Performance Dashboard

The N.C. Department of Transportation is committed to measuring and improving performance. To meet this commitment and to be transparent to the public, NCDOT has developed and implemented a real time, public facing, performance dashboard located at www.ncdot.gov. This model is a high level external facing performance dashboard that is a visual representation of the overall health of the organization and is the primary reporting tool for organizational performance. At the very highest level, this represents the performance measures established for the Secretary of Transportation.

The Department's Performance Dashboard serves as an indicator of how well we are meeting our mission and goals. The dashboard consists of five gauges, one for each goal, which depicts the performance level of a specific measure and can be drilled down to more specific performance data. Each key performance indicator for each goal was systemically chosen because of its wide sweeping impact to the Department and North Carolina. Most key measures graphically depicted on the dashboard are

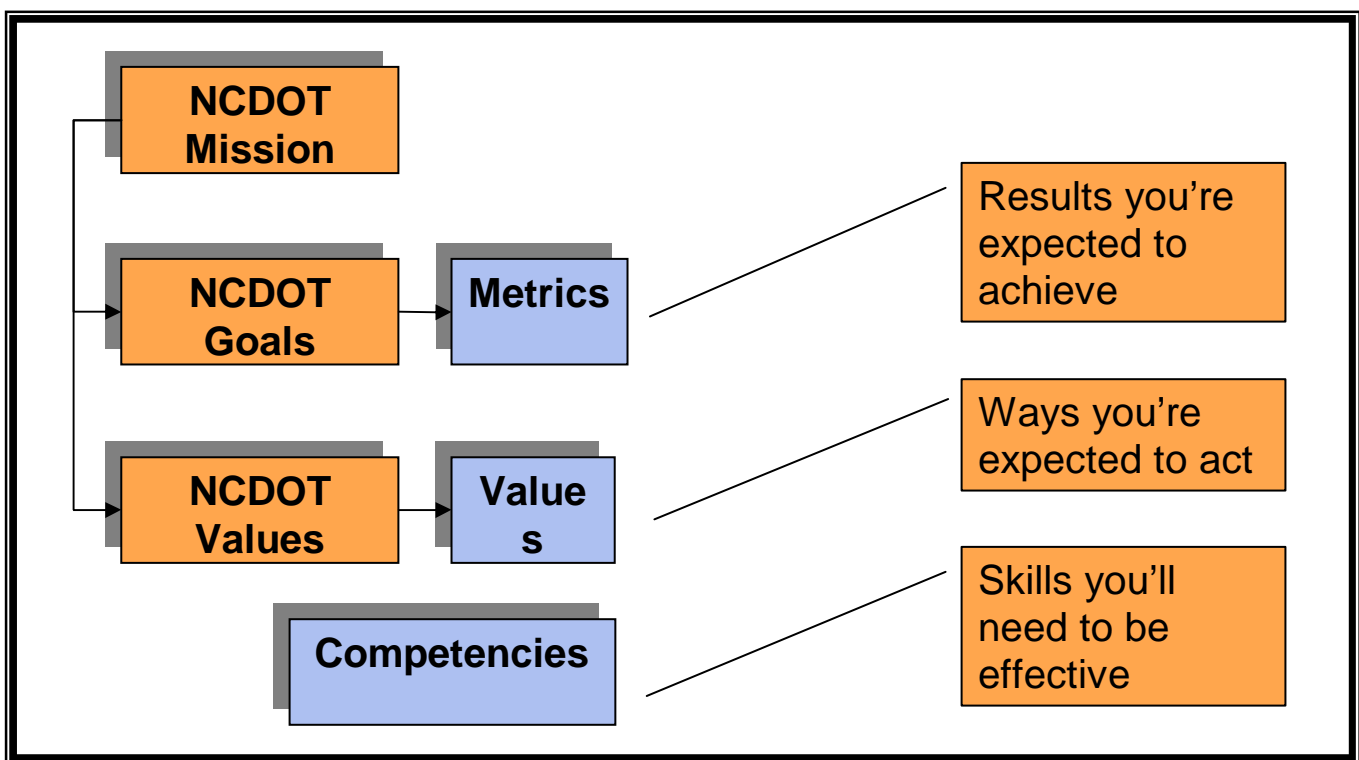
outcome measures or “lagging indicators.” Lagging indicators are an outcome based measure that is directly related to an end product or goal and are used to access and reevaluate whether leading indicator measures were successful in achieving their desired result or target. A “leading indicator” is an input based measure that has an indirect relationship to an end product or goal and can easily influence lagging indicators. Lagging indicators may also affect the leading indicators that are developed and measured.

As of November 2008, four (out of five) gauges have been implemented including:

- Fatality Rate for the goal of making the transportation network safer
- Incident clearance time for the goal of making the transportation network move people and goods more efficiently
- Infrastructure health score for the goal of making the infrastructure last longer
- Delivery rate for the goal of making the organization a place that works well

Each indicator is linked to additional organization performance data and measures based on the key indicator and goal.

F. Performance Metrics Relationship Chart



H. Performance Metrics & Management: Final Documents

Summary / Activities

- 062107_PMM_Performance Metrics and Mgmt Charter_VB
- 081607_PMM_Metrics Summary-Context and Metric Generation_VB
- 071207_PMM_Perf Mgmt Issue Tree and Metrics Outline_VB
- 072607_PMM_Perf Mgmt Intro TMT Presentation_VB

Guidelines for Metrics

Guidance on the development and understanding of performance measures, targets and weights

How do you determine what the appropriate metrics are for your job? The basic question to ask is: If you were doing a good job, how would you know?

There are four different perspectives you can take to help create metrics:

1. Contributing to the achievement of higher-level metrics.
2. Meeting customer requirements.
3. Improving processes.
4. Carrying out key job responsibilities.

Perspective #1 – Contributing to the achievement of higher-level metrics.

What is expected of you is ultimately related to NCDOT's mission or goals. Your work contributes to, or certainly should contribute to, the achievement of these high level goals.

From this perspective, ask questions such as:

- What results should I be producing in order to help my boss, the managers above my boss, and NCDOT's executives achieve the results they are accountable for?
- How does my job contribute to the successful carrying out of NCDOT's mission?
- Which of NCDOT's goals do I contribute to in my job?
- How will anyone know if I am making an appropriate contribution? How will anyone know if I am adding value?

Examples:

- Customer service rep in a call center – Suppose the call center supervisor has this metric: **% of calls taken with less than a 2-minute wait time**. If you are one of several customer service reps, what results would you need to contribute in order for the supervisor to meet expectations for this metric? Since the supervisor's metric is entirely dependent on the cumulative performance of the customer service reps, all the customer service reps would probably have exactly the same metric on their dashboards.
- Division personnel rep – Suppose the HR director has this metric: **% of positions filled within 45 days of requisition**. If you are a personnel rep in one of the divisions, what results would you need to deliver to support this higher-level metric? To support this, the personnel rep's metric might be % of complete personnel packages submitted to Raleigh.

Value Tree

- 061008_PMM_High-level Value Tree_RA

Performance Metrics

- 012508_PMM_Blank Metrics Worksheet_EM
- 012508_PMM_Final Guidelines for Developing Metrics_EM
- 012508_PMM_Cascading Metrics Examples_EM
- 012508_PMM_Directions for Development of Like Metrics_EM
- 012508_PMM_Metrics Presentation for Focus Groups_RA
- 061308_PMM_General Performance Metrics 101 Presentation_VB
- 091207_PMM_Metrics Template with Goals_RA
- 040108_PMM_Metrics Worksheet Chief Engineer_KP

Performance Dashboard

- 073107_PMM_Executive Committee Perf Mgmt Best Practices & Overview_VB
- 071308_PMM_Dashboard Screen Shots Presentation_KP
- 120707_PMM_Secretary of Transportation Metrics_VB
- 103108_PMM_Dashboard Documentation_EM

Outreach

- 112007_PMM_Detailed Performance Metrics Pilot Presentation_VB
- 071207_PMM_Communications Outreach Pyramid and Timeline_VB
- 060908_PMM_DOH Operations Metrics Presentation_VB
- 071307_PMM_PM&M Team Outreach Memo_RA
- 080807_PMM_Performance Metrics Memo to Managers_RA

- Transportation Supervisor – Suppose your boss, the County Maintenance Engineer, has the following metric: **70%-85% of county projects / programs delivered on schedule (composite score)**. To support this, a transportation worker's metric is: **70-85% of SR construction projects completed on schedule**. Each transportation worker on the secondary road construction crew would share this metric.
- Ferry Crew Member – Suppose the captain of a ferry that you are assigned to has the metric: **% of trips that are on or within 10 minutes of the schedule**. This metric is directly linked to the Department's goal of "moving people and goods more efficiently" and directly linked to the Division Director's ferry system reliability metric. To meet this metric each crew member on the ferry would also have the same metric (**% of trips that are on or within 10 minutes of the schedule**) because each crew member would have specific tasks to achieve in order to meet the target (such as loading vehicles, collecting fees, assisting passengers, mooring and unmooring the vessel, fueling the vessel, etc.).

Perspective #2 – Meeting customer requirements.

In your role you have customers (every job does) and it is their requirements that determine your results expectations. Your customers may be internal (other employees or work units that you serve) or external (citizens or outside groups that you serve).

From this perspective, ask the following sequence of questions:

- What products or services do you provide?
- To whom do you provide them? (Who are your internal or external customers?)
- How do your customers know if your products or services are meeting their requirements? How do you know?

Examples:

- [Any position that provides internal service] – In this position you provide services to a large number of "internal customers" within NCDOT. An appropriate metric would be: **% of internal customers satisfied with service provided**. This metric would require development of a scorable questionnaire that is sent to service recipients either immediately after a service has been provided or on a fixed schedule (e.g., quarterly, annually). The questionnaire would need to be carefully constructed and a process put in place to send it out and tally the results. If the number of service instances or the number of employees served is very large, recipients could be sampled rather than trying to cover every instance and every recipient.
- Administrative Assistant – In this position, you act as a receptionist for a high-level manager. How effectively you handle visitors, incoming telephone calls, and emails is important. Basically, you are serving two sets of customers – those individuals who come into the office, call, or

send an email are customers, but your manager is also your customer. An appropriate metric might be: **Score on periodic evaluations of customer interactions**. This would involve your manager or a designated third party unobtrusively listening in on your interactions with customers and reviewing email correspondence. This would be done on a periodic, “sampling” basis. You would want to work with your manager to create a checklist that defines the factors critical to producing the desired results as a receptionist and communication coordinator. The checklist would be scored and used to provide feedback to you. If several observations are conducted during the performance cycle, the scores could be averaged to produce a final score for your PDA on this metric.

- IT Technical Support Analyst – A customer service survey may be developed to gauge the satisfaction of those customers requesting IT assistance. While a 100% satisfaction level will be impossible to achieve, maybe a more acceptable target range is: **80-90% of customers are satisfied (Customer Satisfaction)**. Another metric for the Analyst may be: % of closed help desk tickets re-opened by the customer (therefore, indicating that the IT service was not completed to the satisfaction of the customer).

Perspective #3 – Improving processes.

In a performance culture, it is important to continuously look for ways to improve procedures, remove bureaucratic roadblocks, and better satisfy the public’s needs and NCDOT’s mandate – in other words, to do the job faster, better, cheaper. Therefore, at any given time, you may be involved in projects to improve processes, and the successful completion of the projects becomes a results expectation for you.

- What major improvements are needed in the way the work gets done?
- How will anyone know if an improvement has been made?
- How will you know if your intended process improvements were successful?

Examples:

- The State Roadside Environmental Engineer has a metric for **Safety Incidents at Rest Areas and Welcome Centers** that is intended to improve customer safety at those facilities. However, there are currently no mechanisms in place to measure and report on the number of safety related incidents occurring at the facilities. The Roadside Environmental Unit’s Rest Area Section Supervisor could have a metric that requires the development of a Statewide Rest Area Safety Incident reporting system by a certain date. This will help the State Roadside Environmental Engineer identify problem areas and set appropriate targets to improve safety issues.
- Business Officer – Suppose a business unit manager has the metric: **% of programs/projects delivered on schedule**. To align with that metric suppose the business officer has the metric: **% of program/project**

invoices paid on time. However the business officer is not able to meet this metric regularly because the process for delivering the invoices from the project manager to the business officer is not working efficiently. To improve the process for invoice payment, the business officer could document the current process, propose a new, more efficient, and faster process, and document the time savings for implementing the new process. A success indicator for the process measure may be the reduced time it now takes to pay the invoices.

- Division Engineers have a metric for **“Incident Clearance Time”** that is intended to improve reliability on our transportation network. However, some Divisions have snow and ice plans implemented that only consider routes within an individual county and do not consider route continuity among counties with the Division. The Division Maintenance Engineer or CME could have a metric to develop a plan to transition from a county-wide snow and ice plan to a division-wide snow and ice plan within a specified timeframe. This will allow for better coordination and better utilization of equipment and personnel across the entire division.
- Division Engineers have a metric for **“Projects and Programs on Schedule”** that is intended to minimize time overruns on construction projects and funding programs. A Resident Engineer could have a metric to reduce the amount of time to initiate dilatory progress process or to reduce the amount of time to request the show cause letter. A metric may be related to the reduction in amount of time from before to after.

Perspective #4 – Carrying out key job responsibilities.

Your job description identifies the important tasks that you are expected to perform as part of your role. Although responsibilities in a job description are usually not written in terms of results (they are phrased more in terms of things that you do, the tasks you perform), they are often used as the basis for defining results expectations.

Taking this perspective, you can ask the following questions, keeping in mind the need to translate your responsibilities into results expectations:

- What are your key responsibilities?
- What does your job description say you are supposed to do?
- What are you, by statute or policy, required to do?
- How will anyone know if you are carrying out your responsibilities effectively?

Examples:

- Trainer – Suppose one of your key responsibilities is to train employee supervisors on managerial skills. How will you know if you are carrying out this responsibility effectively? One way to do this is to determine if the employees you have trained apply what they have learned back on their jobs. The appropriate metric might be: **% of trainees whose supervisors report they have used the newly acquired skill or knowledge on the**

job. This metric would require that you develop a questionnaire that is sent to trainees' supervisors, say, three months after the trainees complete their training. The questionnaire would ask questions concerning the behavior you would expect to see on the job if trainees were applying what they learned. The questionnaire would be scorable. This metric will require a bit of administrative work to ensure the questionnaires get sent out to supervisors at the appropriate time, to follow up with supervisors and remind them to complete the questionnaire, and to tally the responses when questionnaires are returned. (Note that this metric is more relevant and of far greater value than counting the number of employees trained or looking at course evaluations turned in by trainees at the end of the course, even though these metrics would be much easier to collect.)

- **Administrative Officer/Program Manager** – Suppose you are responsible for submitting a quarterly report. An appropriate metric might be: **Score on checklist of factors that define the standards for the report.** The factors could include: on time, clearly written, no grammatical or spelling errors, based on accurate data, includes action recommendation, etc. You and your supervisor would identify four or five “judges” to use the checklist to evaluate the report each quarter.
- **Public Information Officer** – Your job description says that one of your key responsibilities is to write public news releases for distribution to the media. An appropriate metric that meets this responsibility might be: **% of news releases that are delivered on or before the due date that do not require re-writes.** At the end of a performance cycle you and your supervisor may evaluate all of your delivered news releases and come up with a success rate based on the target criteria.
- **Driver License Examiner** – Suppose your job description says that one of your key responsibilities is to collect the required fees and prepare receipts for the issuance of driver licenses. An appropriate metric may be the **success rate for the collection of payment.** Suppose your job description also says that another key responsibility is to perform all tasks associated with the issuance of licenses to approved applicants. An appropriate metric might be the **% of licenses prepared and provided to the applicant without errors.**

Tips for constructing metrics:

1. A metric consists of a measure, a target, and a weight. The measure is how you are going to determine if a particular result has been achieved. Think of it as a yardstick.
2. A target specifies the range of achievement on a particular measure that signifies that performance has “met expectations.” The target is the outcome you are aiming at, the result you are trying to achieve. A result that falls above the target “exceed expectations;” a result that falls below it, “does not exceed expectations.”
3. You always want to set expectations at a level that is challenging but achievable. You should have to “stretch” in order to exceed expectations.

4. Recognize that if your target is perfection, the best you can do is meet expectations. Give yourself room to exceed expectations.
5. Measures usually have to do with quantity, quality, cost, or timeliness. If you look at your metrics and they are all just one of these types, you may want to rethink your metrics to try to attain a broader mix of metric types. For example, if all your metrics are about meeting quotas for quantity, you should ask if quality matters.
6. All four types of metrics can be measured numerically. For example: 20-25 widgets per hour (quantity), 85%-95% customer satisfaction (quality), \$75-\$80 per mile (cost), and 3-7 days to process (time).
7. Time can be overused as a metric, especially in jobs that are largely project based. Do not fall into the trap of having all your metrics focus on getting things done on time.
8. Measures can be combined to capture multiple requirements in a single metric. For example: % of reports delivered on time with no errors. This combines time and quality measures. If "no errors" were used alone as a target, it would require perfection. As part of a compound measure, however, you would have some allowance for errors. If the actual metric was 90%-95% of reports delivered on time with no errors, you could have an error in one report out of ten and still meet expectations if the rest were on time and error free.
9. Often it is the unimportant things that are easy to measure and the important stuff that seems unmeasurable or very difficult to measure. The metrics on your dashboard should always try to capture those results that it is most important for you to produce.
10. Avoid creating metrics that are impractical. Any metric that requires nearly as much effort to measure as it does to produce the required result is clearly counterproductive. Think of ways to simplify the measure through automation, sampling, or building the measure into the performance of the job itself.
11. Not all important results lend themselves to numeric measurement. If a numeric measure is not available, create a descriptive measure. A descriptive measure could be a form or checklist on which you list the key factors or attributes that define the required results. You design the checklist so that it is scorable. And then you identify who will be the judges, that is, who will use the checklist to evaluate performance, and how often they will use it and under what conditions.

Name: _____

Position/Title: _____

- NCDOT Goals:**
- (1) Make our transportation network **safer**.
 - (2) Make our transportation network move people and goods **more efficiently**.
 - (3) Make our infrastructure **last longer**.
 - (4) Make our organization a place that **works well**.
 - (5) Make our organization a **great place** to work.

PERFORMANCE DASHBOARD AND APPRAISAL WORKSHEET

Goal	Metric (focus area of impact/influence)	Metric Definition (performance measure)	Target (expressed in range)	Data Source	Sub wt.	Wt (%)

PERFORMANCE METRICS

A decorative L-shaped line composed of two parallel horizontal and vertical segments. The top segment is horizontal and the right segment is vertical, meeting at a 90-degree angle. The line is composed of two parallel lines, one dark blue and one dark red.

What are Performance Metrics ?

A standard of measurement that is a measurable category of performance (such as crash rates, employee satisfaction, customer service or project delivery).

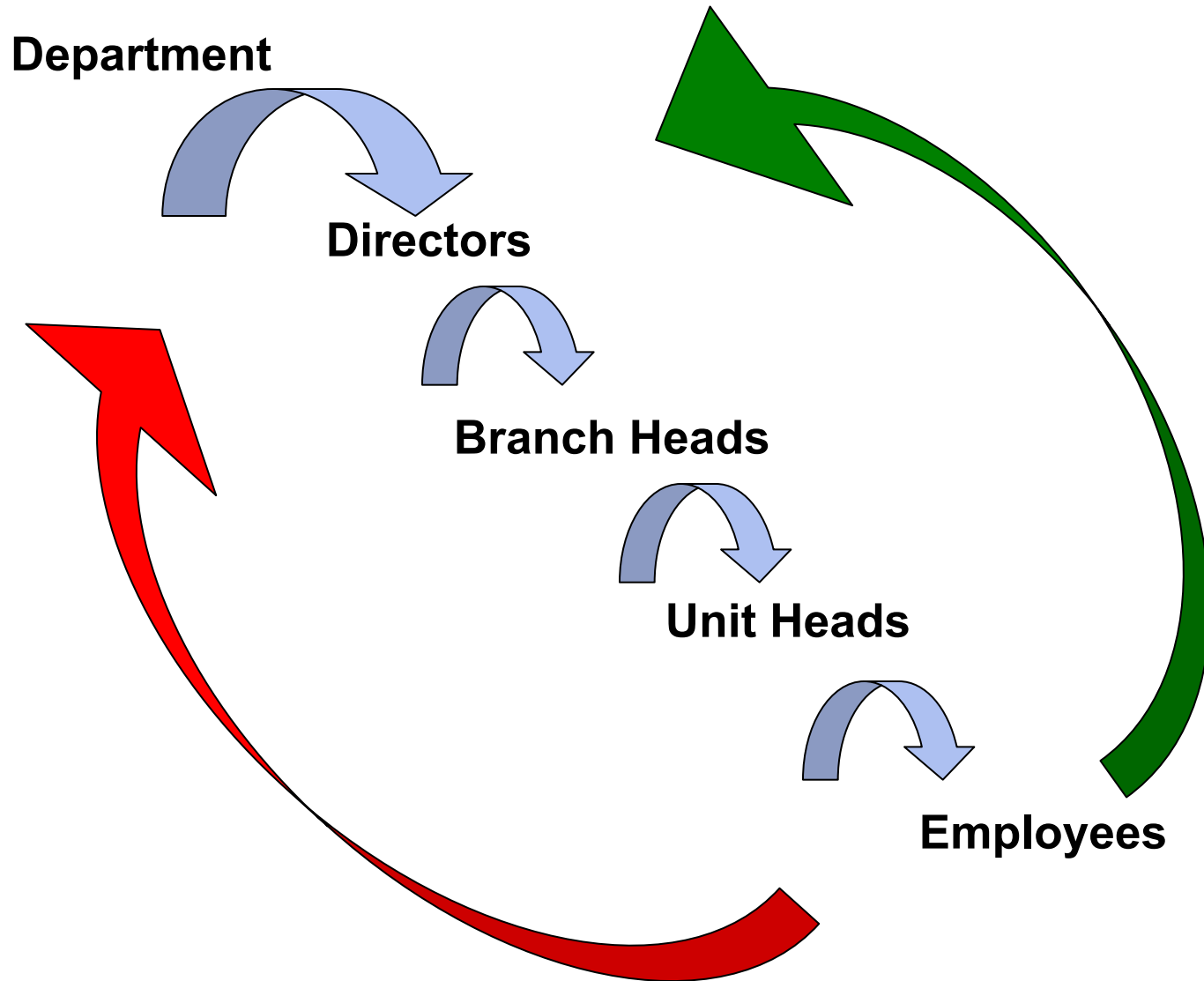
Performance Metrics consist of a...

- **Measure** – *results of action to be gauged related to Mission & Goals*
- **Target** – *desired level of achievement (expressed in a range)*
- **Weight** – *level of importance (expressed as a %)*

Performance Metrics are used to...

- Measure process results
- Measure expectations
- Establish goals for the organization
- Establish goals for the individual
- Gauge performance throughout organization
- Make better decisions

Performance Metrics should cascade



Name: _____

Position/Title: _____

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PERFORMANCE DASHBOARD AND APPRAISAL WORKSHEET

Goal	Metric (focus area of impact/influence)	Metric Definition (performance measure)	Target (expressed in range)	Data Source	Sub wt.	Wt (%)

GUIDE FOR DASHBOARD SCORECARD

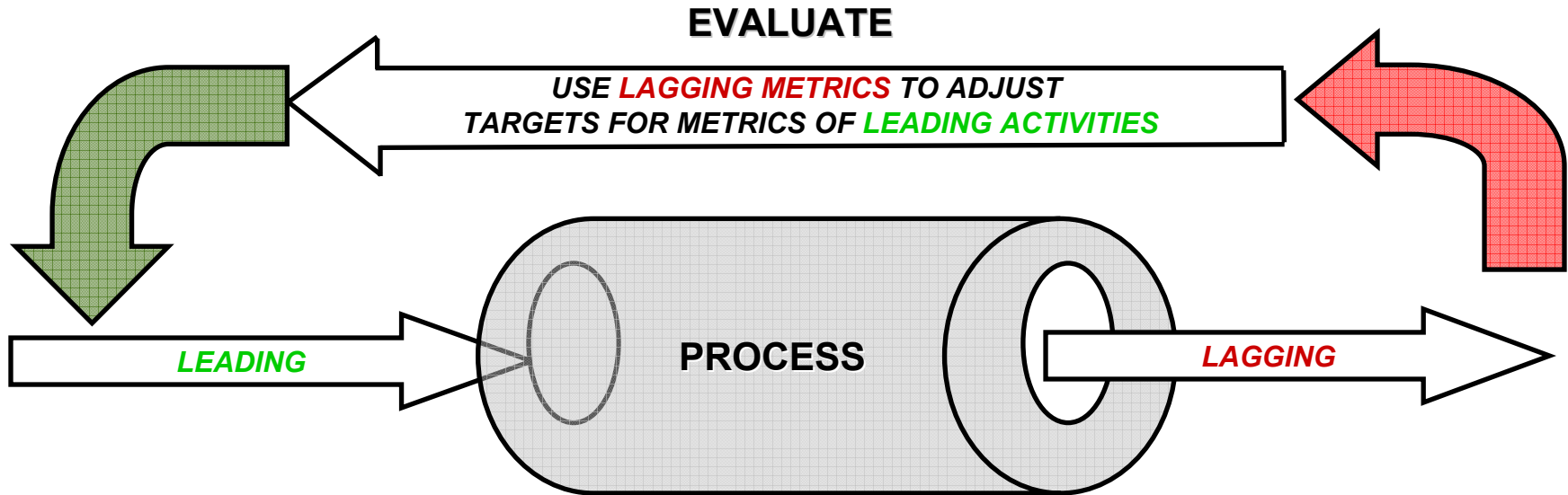
FOR USE IN PERFORMANCE REVIEW MEETINGS

Metric	Metric Data	Target	Data Source	Wt (%)
Fatalities	<i>Fatalities per 100 million vehicle miles; i.e. 1.58...this will be compared against a baseline TBD (% improvement)</i>		<i>Traffic Engineering Branch</i>	
Reliability of Strategic Highway Corridor System	<ul style="list-style-type: none"> •Average operating speeds on Strategic Highway Corridors •Travel time reliability •Congestion (Level of Service) 		<i>Transportation Planning Branch</i>	
Transit Service	<i>% Increase in Frequency of Service compared to previous year for Rail, Ferry, Public Transit, etc.</i>		<i>Transit</i>	
Department Infrastructure Health	<ul style="list-style-type: none"> - Composite Statewide Rating (Level of Service Rating) - % annual increase in value of Department infrastructure 		<i>Asset Management-Maintenance Condition Reports Financial Management Division</i>	
Projects/Programs/Services on Schedule and on Budget	<i># of projects/programs/services planned for year divided by # actual completed = % success rate</i>		<i>Program Development report from Project STaRS and/or BW, HiCAMS</i>	
Business Development and Outreach	<i>% Contract dollars awarded to DBEs, MBEs, WBEs, SBEs, & HUBs</i>		<i>SAP</i>	
Customer Service	<i>Customer survey scores (public, partners, etc.)</i>		<i>TBD</i>	
Fiscal Management	<i>% improvement of administrative budget(s)</i>		<i>TBD</i>	
Employee Safety	<i># of reported incidents that cause lost work days and/or worker's comp claims compared to baseline, i.e previous year(s) reported incidents</i>		<i>Safety and Loss Control</i>	
Employee Satisfaction	<i>TBD</i>		<i>Employee Survey</i>	
Recruiting, developing and retaining employees	<i>Retention rate of "Top Performers" and/or stabilization rate</i>		<i>TBD</i>	

Metrics: Leading vs. Lagging

LEADING INDICATORS <i>(Input & Output)</i>	LAGGING INDICATORS <i>(Outcomes)</i>
<p>Leading Indicators are metrics that are task specific</p> <p>Leading Indicators measure and track performance before a problem arises</p> <p>Leading Indicators are <u>proactive</u></p> <p>Leading Indicators indicate what may happen (future)</p> <p>Leading Indicators are a predictor to the ability to meet future goals</p>	<p>Lagging Indicators are <u>reactive</u></p> <p>Lagging Indicators are reflective and measure performance against prior goals</p> <p>Lagging Indicators indicate what has already happened (past)</p>

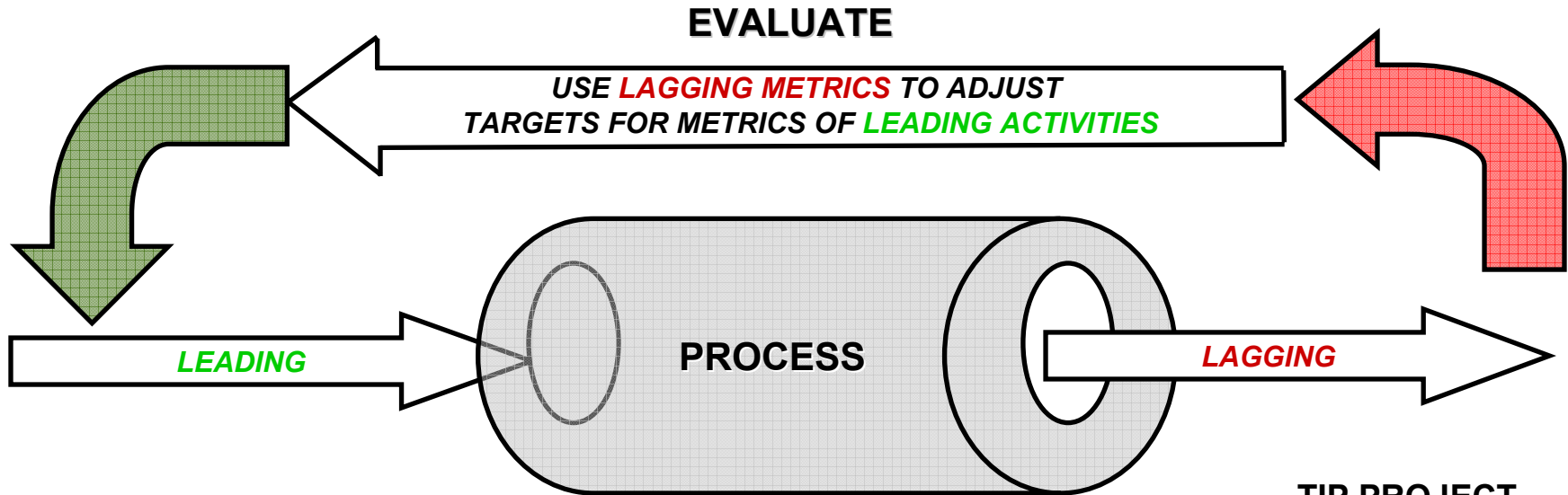
CRASH RATES



CRASH RATE

- IMPROVING SHOULDER DROP-OFFS
- ADDING REFLECTIVE MARKERS
- TURN LANE ADDITIONS
- LEGALLY LICENSED DRIVERS
- REDUCTION OF VMT BY USE OF ALTERNATIVE MODES
- TIMELY PROJECT DELIVERY

PROJECT DELIVERY



**TIP PROJECT
DELIVERY
SUCCESS RATE**

- TIP DEVELOPMENT & FUNDING
- ENVIRONMENTAL DOCUMENT COMPLETION
- DESIGN PLANS COMPLETED
- MINIMAL SCHEDULE CHANGES
- CONCURRENCE POINTS ACHIEVED
- RIGHT OF WAY PURCHASED
- TIMELY CONSTRUCTION COMPLETION

How to Interpret Metrics

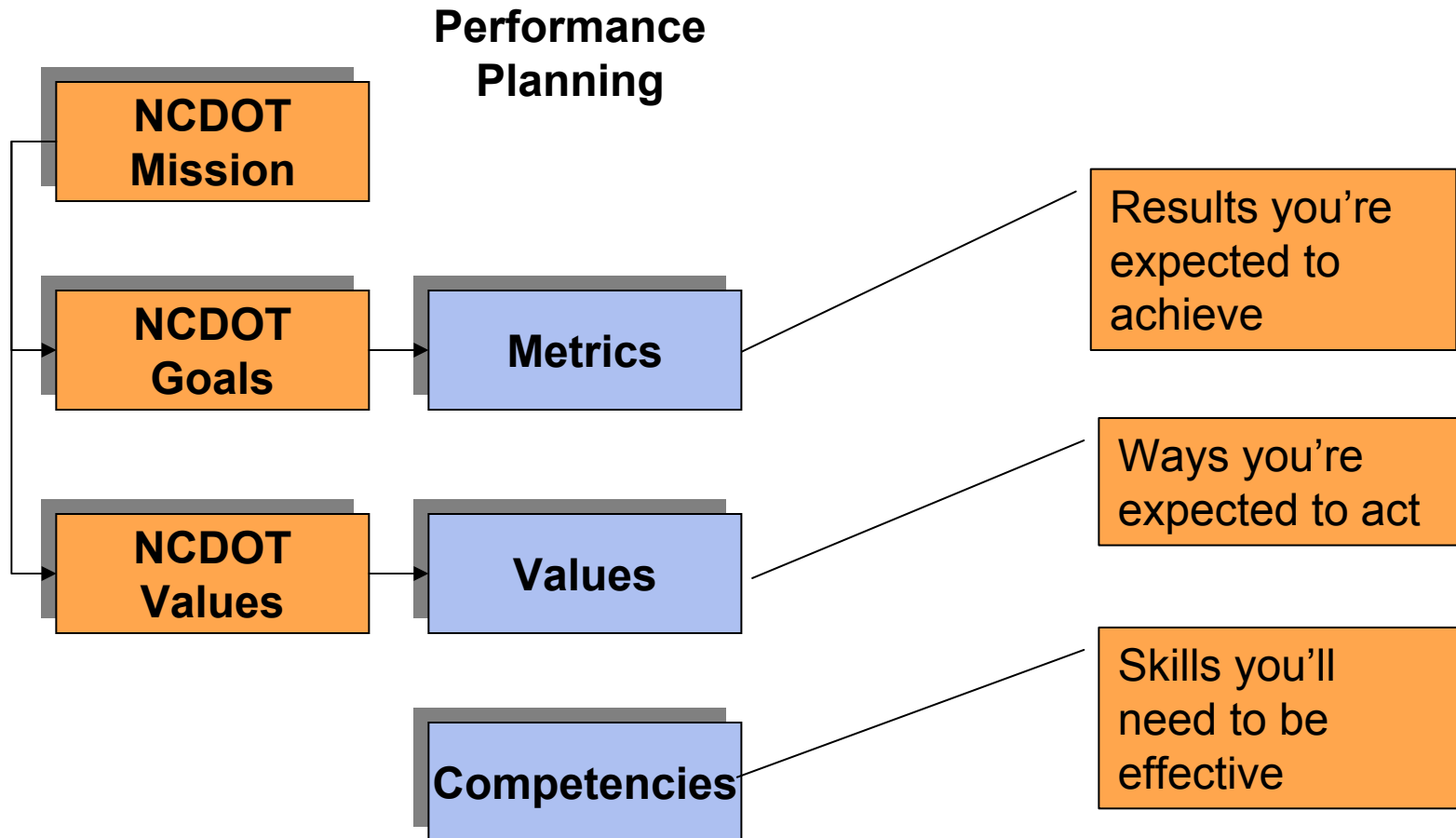
For improved organizational performance, Executives and Managers must all be able to interpret metrics appropriately.

To do so, they must.....

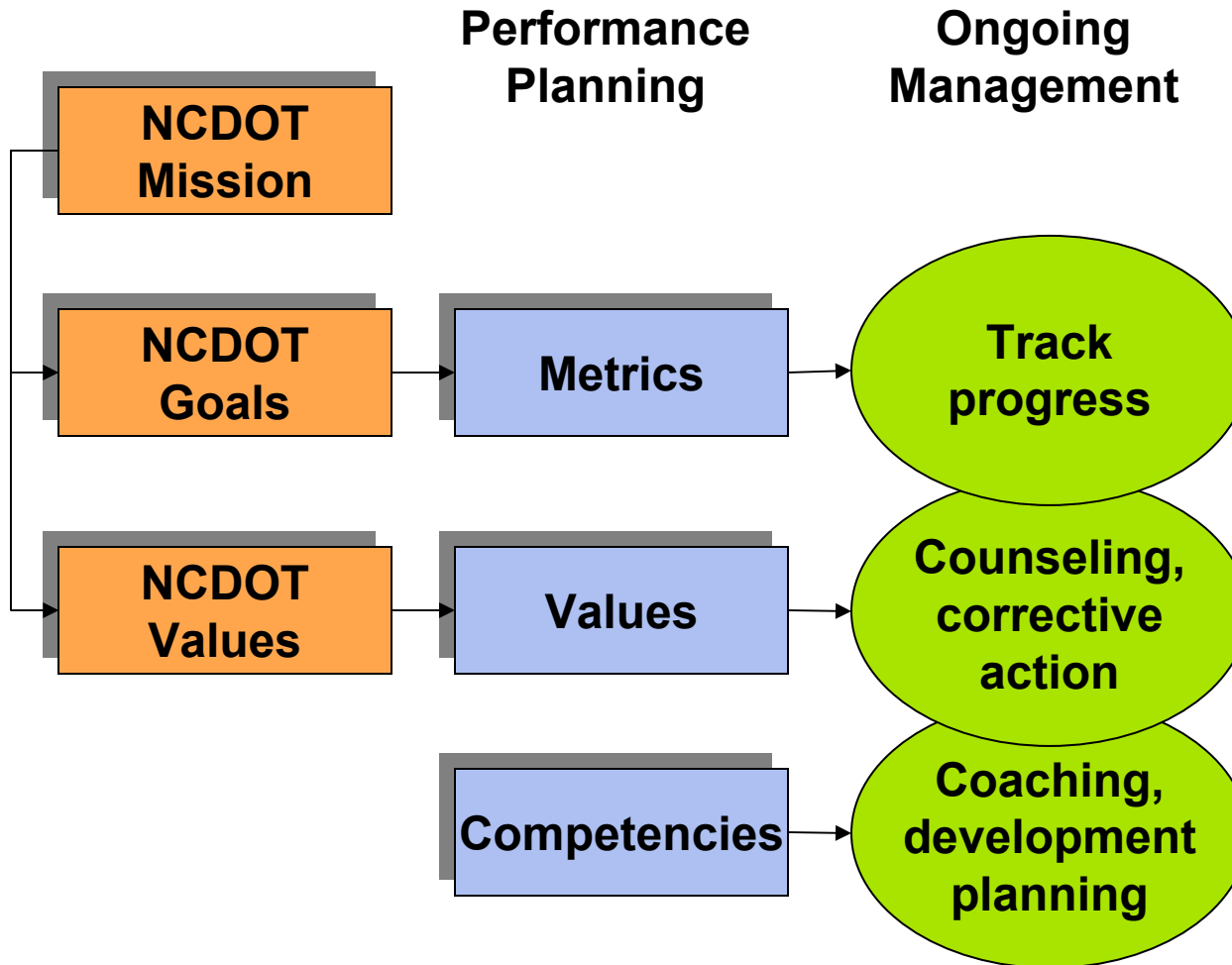
- (1) understand precisely what is being measured and the target
- (2) gauge whether the results are positive or negative based on the organization's goals
- (3) place the appropriate weight or relevance on the metrics for issues being addressed by the organization...

“Appropriately interpreting a measure and the meaning of results provides the necessary foundation for acting on those results and effecting improvement”

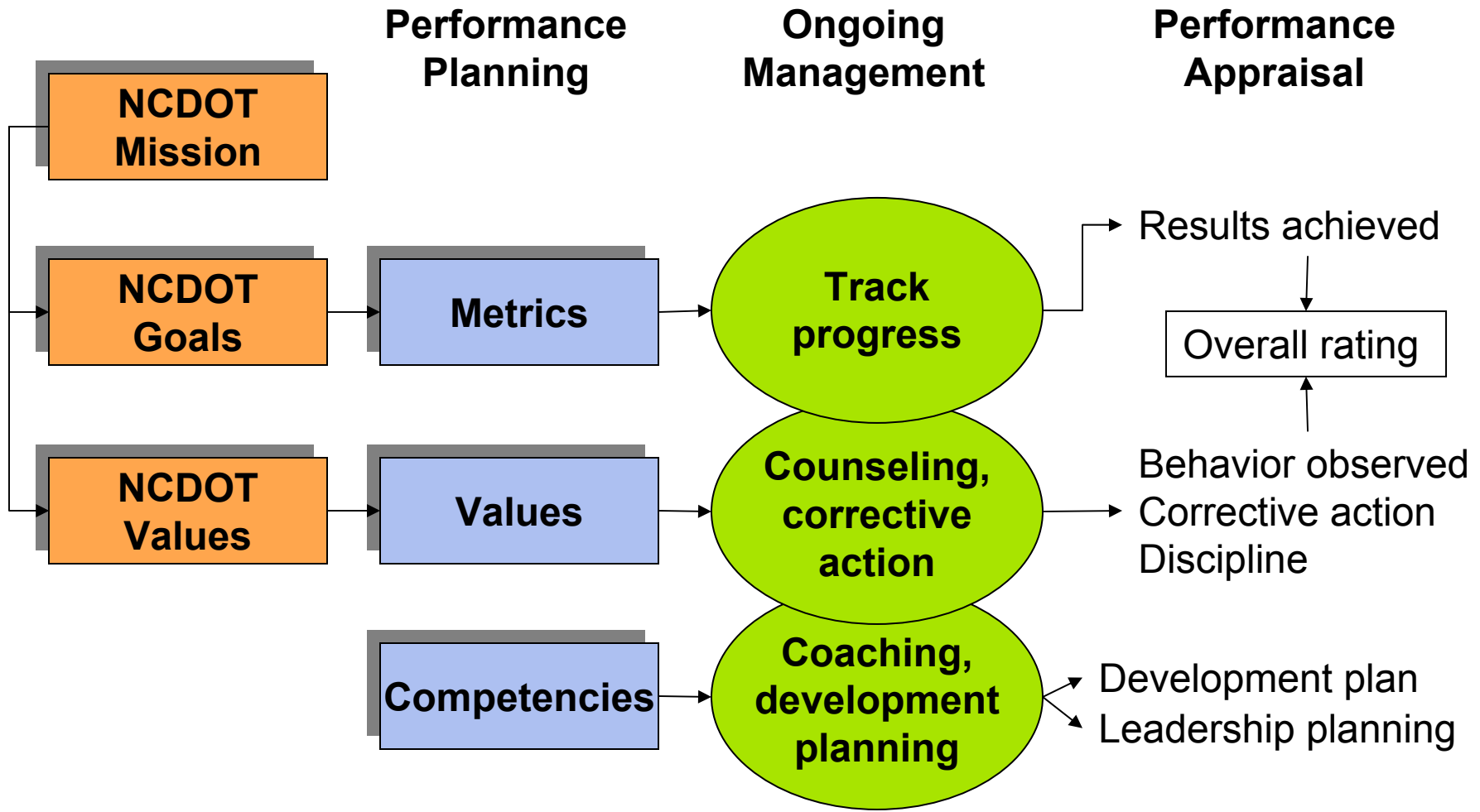
Performance Management Process



Performance Management Process



Performance Management Process



Performance Expectations

The Old

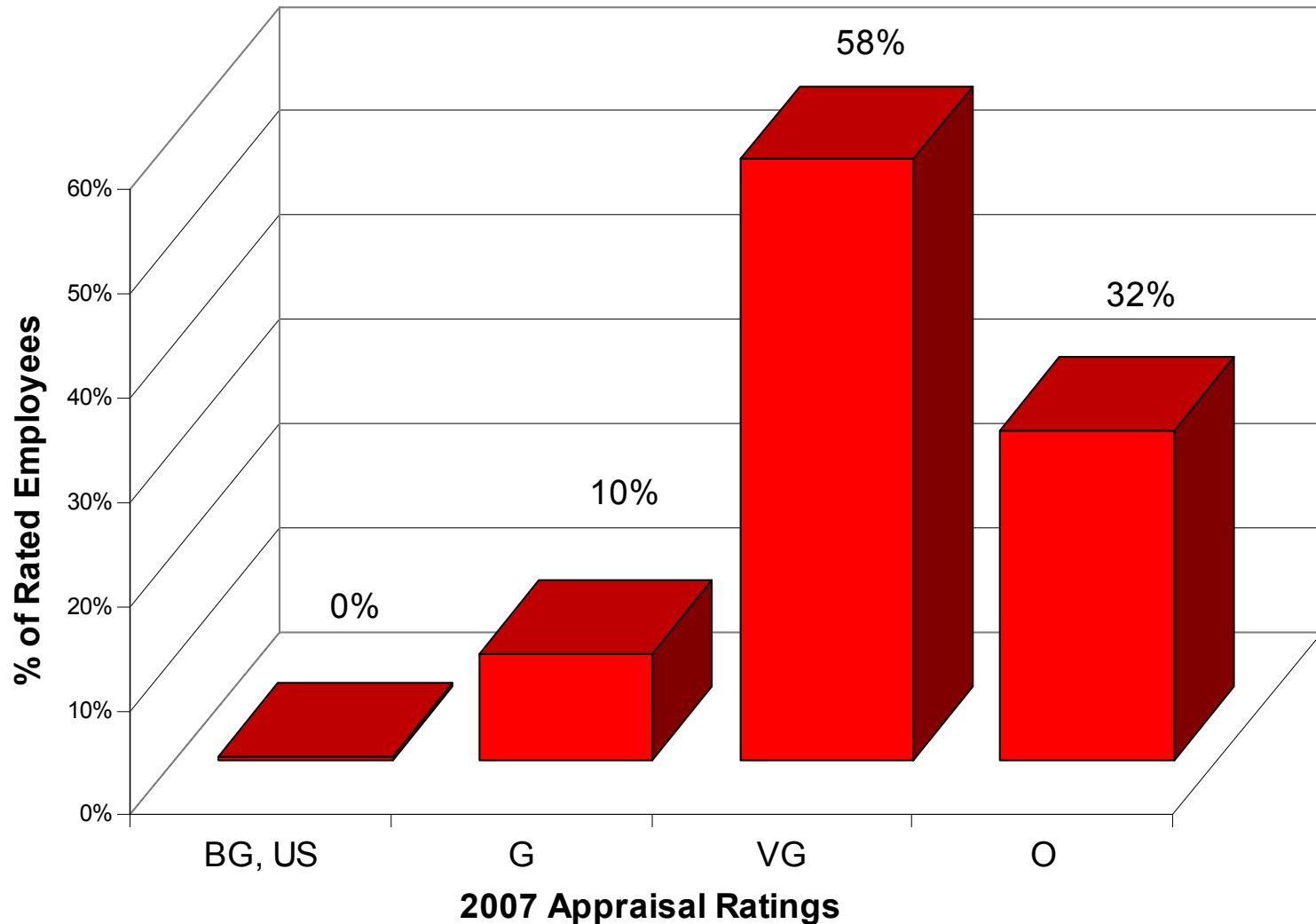
- Provide leadership to ensure safety of DOT employees, contractors and public while delivering programs
- Identify and implement strategies to recruit, develop and retain employees
- Ensure project delivery is in compliance with DOT's environmental stewardship policy
- Provides informed management control

The New

- 1.50-1.75 crash rate
- 90-95% reliability on system strategic highway corridors and regional tier routes
- B- division infrastructure health
- 85-90% delivery on schedule and on budget
- 95% of business development and outreach goals met
- 80-90% customer service score

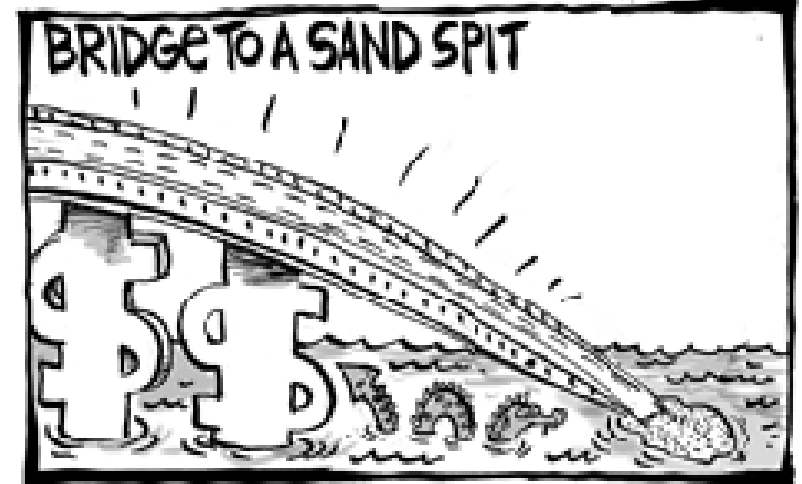
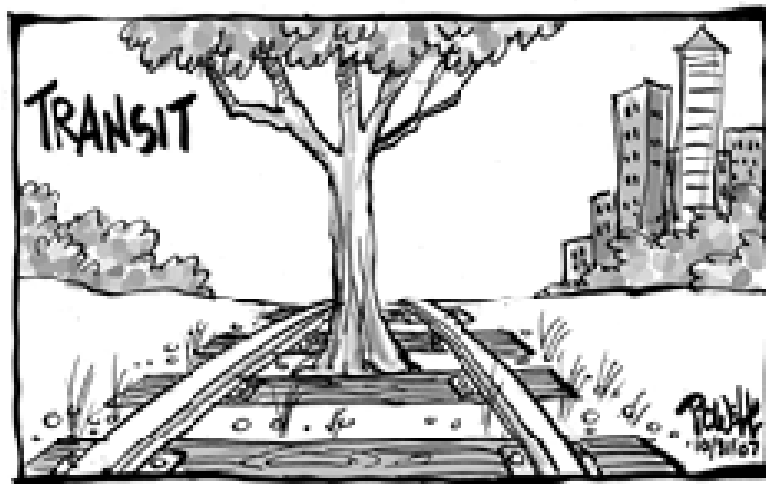
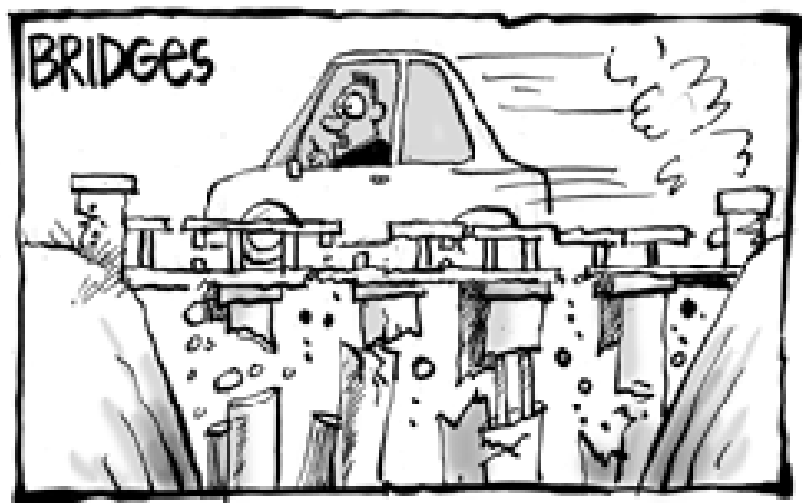
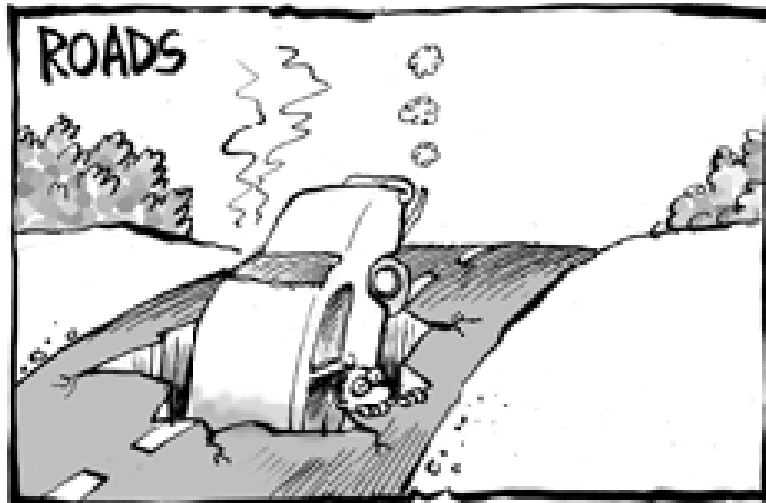
How We See Our Own Performance

Distribution of Appraisal Ratings, 2007 - NCDOT



How Our Customers See Our Performance

N.C. TRANSPORTATION NEEDS —



Dwane Powell, News & Observer,
October 31, 2007

Performance Metrics – Summary

- ❑ What does “success” look like?
- ❑ What are the deliverables?
- ❑ Once you determine what your deliverables are, how would you measure them...

Performance Metrics – Summary

- When developing measures think:
 - Contributing to higher level metrics
 - Customer needs / requirements
 - Process measures
 - Key job responsibilities / duties
- Individuals should have no less than 3 measures and no more than 10 measures
- Measure the outcomes
- Be sure they are measures (such as percent of, number of, rates, etc.)

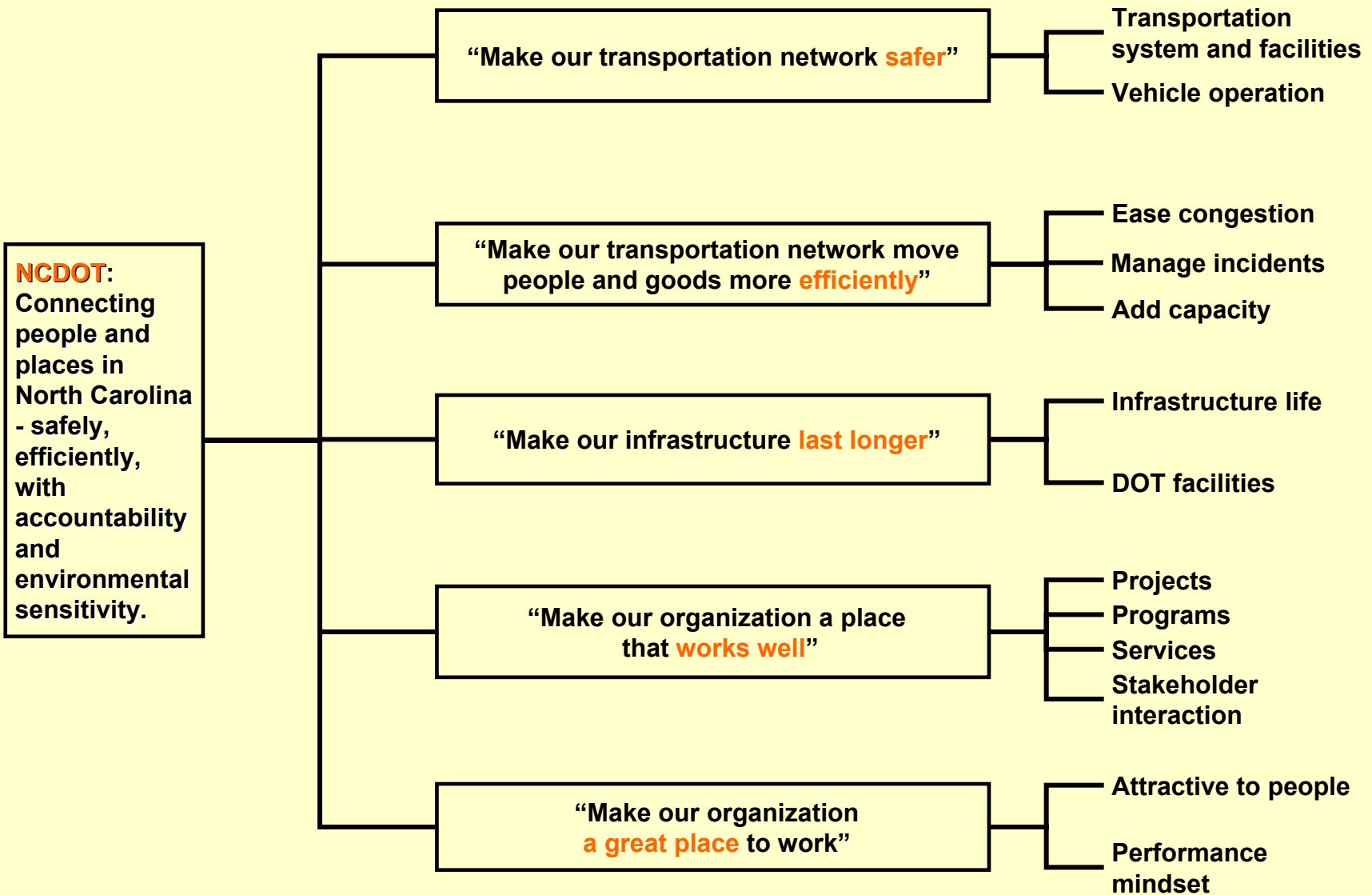
Performance Metrics – Summary

Keep it simple.
This ain't rocket
science

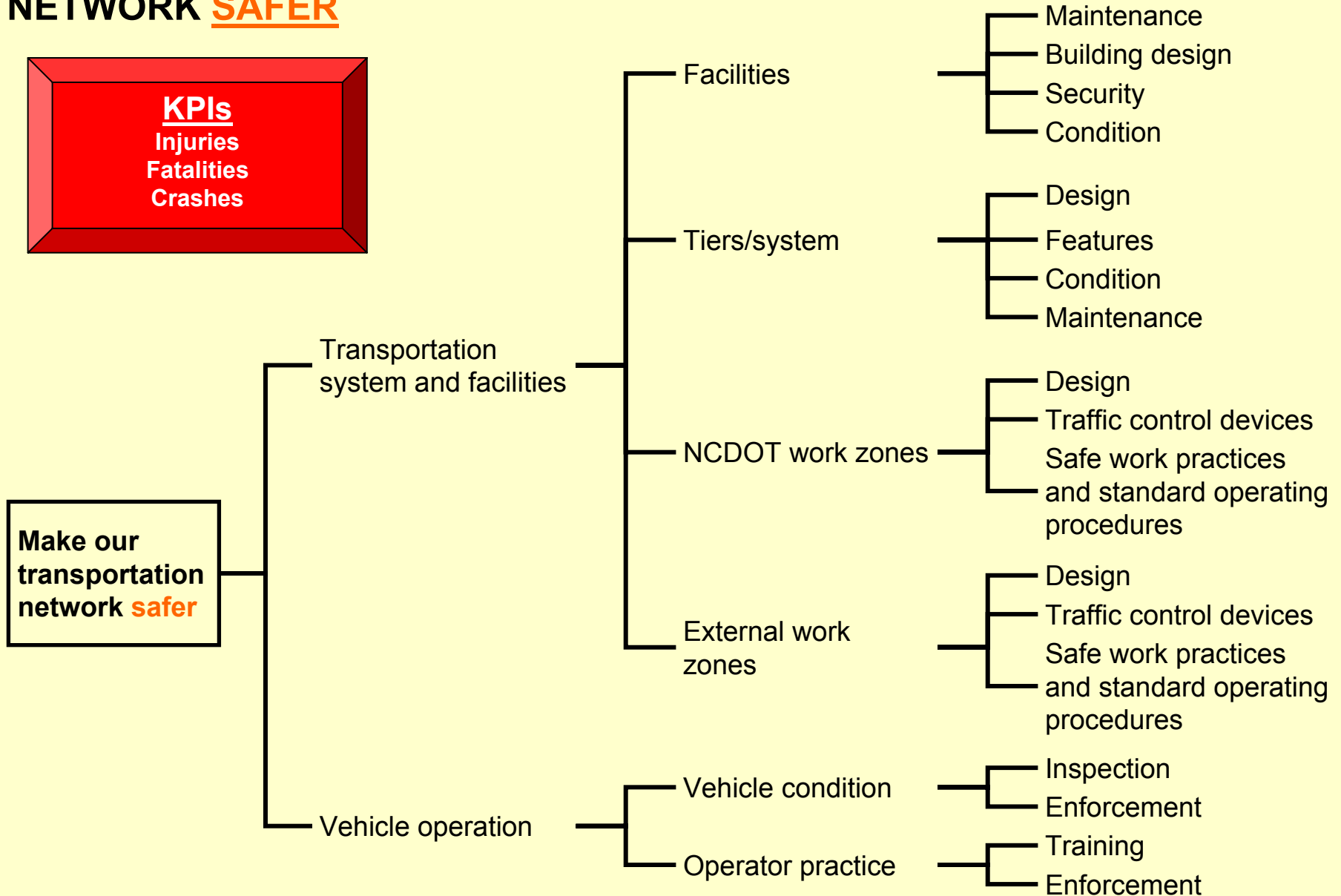
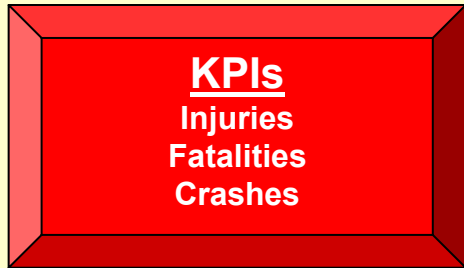


NCDOT HIGH-LEVEL VALUE TREE

with Key Performance Indicators (KPIs)



MAKE OUR TRANSPORTATION NETWORK SAFER



MAKE OUR TRANSPORTATION NETWORK MOVE PEOPLE AND GOODS MORE EFFICIENTLY

KPIs

Incident Clearance Time
Volume to Capacity
Customer Satisfaction
Average Operating Speeds

Make our
transportation
network move
people and goods
more **efficiently**

Ease congestion
(time/rates)

Manage incidents
(clearance time)

Additional capacity

Information and
communication

Flow/design

Alternatives

Accidents

Emergencies

Surge

Expand service

New locations

New programs

Information “push”

Information “pull”

Turn lanes

Storage

Ramp metering

Work zones

HOV

Signals

Tolling

Access management

Bike path

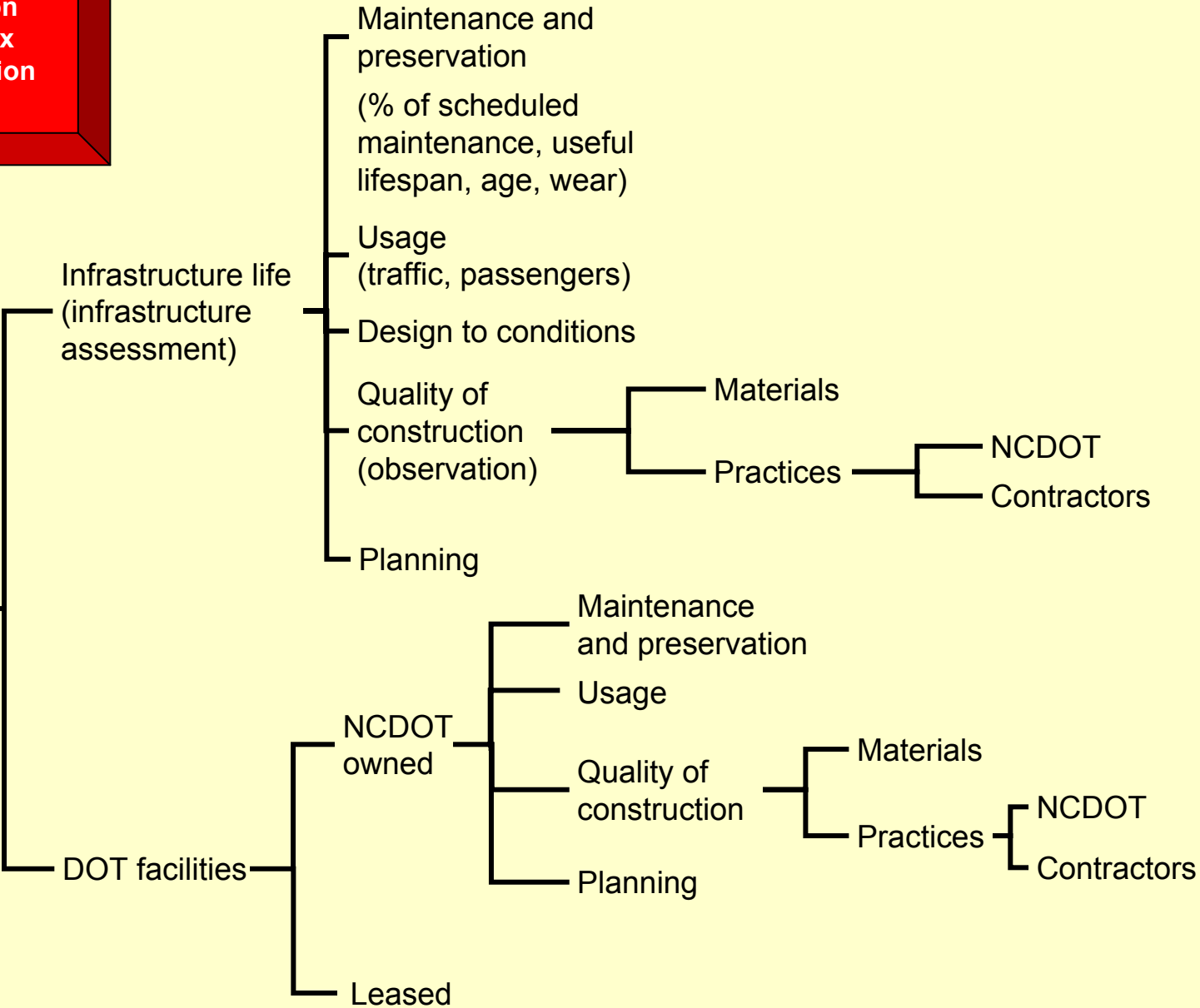
Mass Transit

Car pool

KPIs
Pavement Condition
Bridge Health Index
Maintenance Condition

MAKE OUR TRANSPORTATION NETWORK **LAST LONGER**

Make our infrastructure last longer

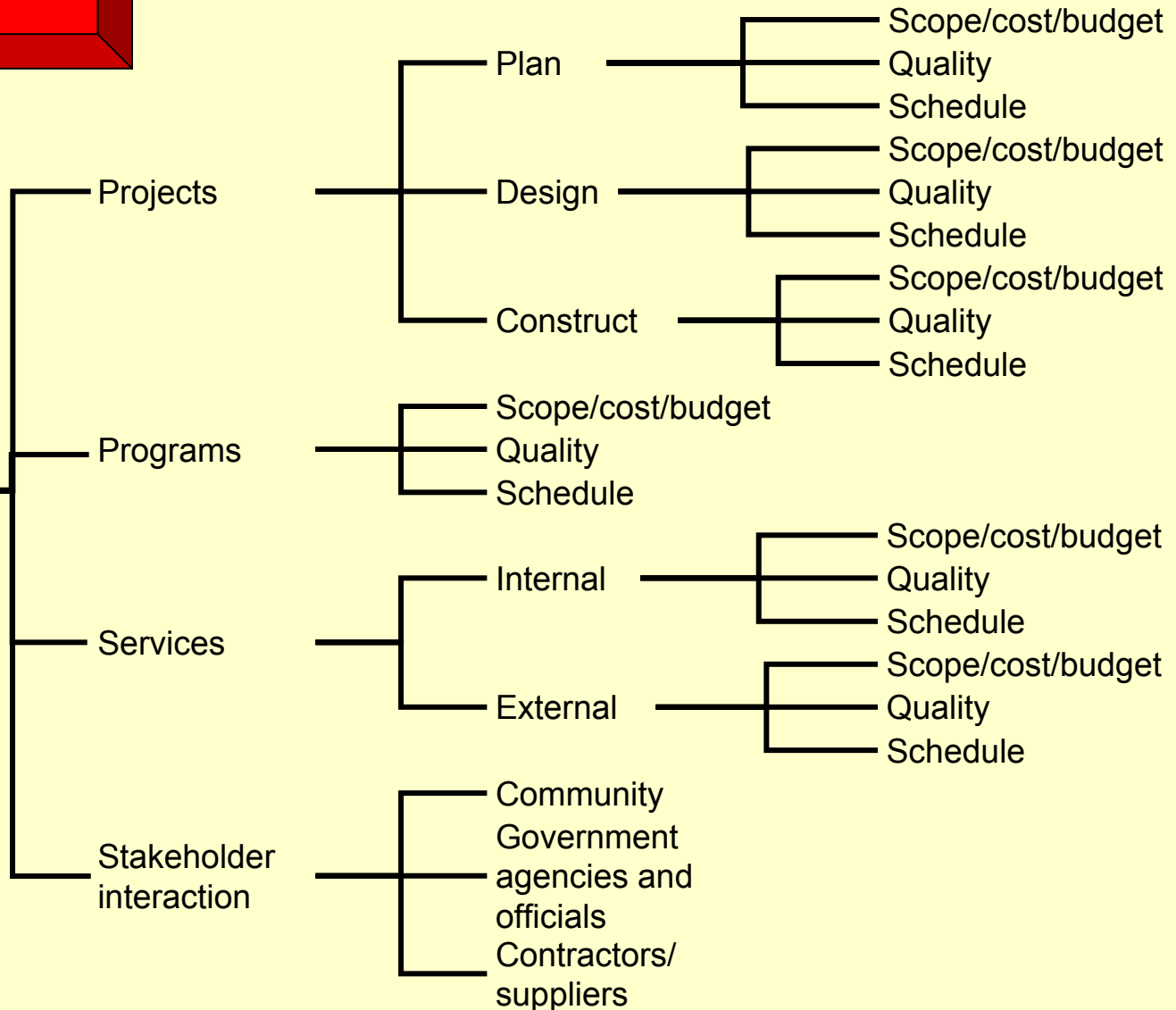


KPIs

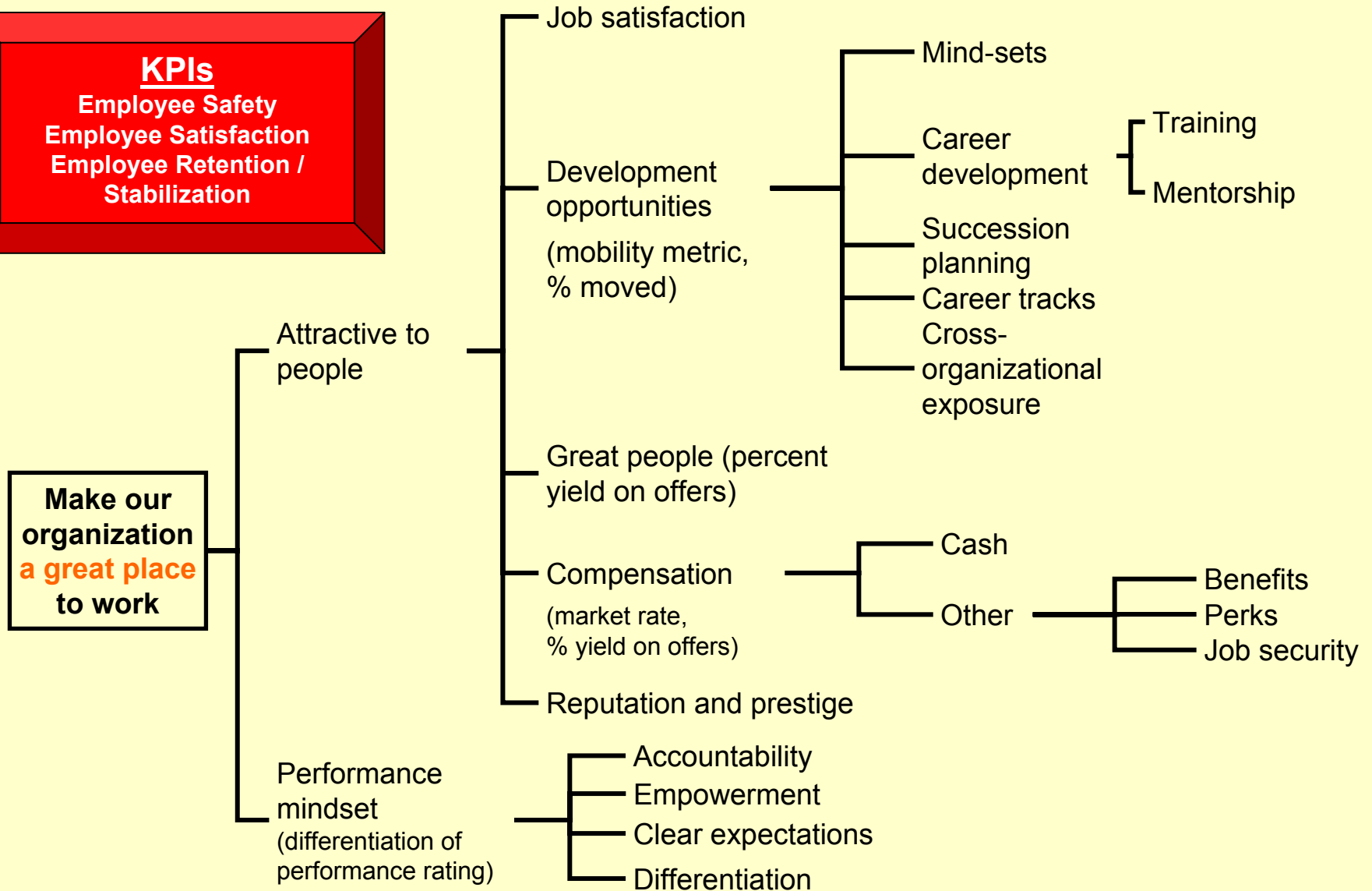
% Delivered on Schedule
% Delivered on Budget
Customer Service Scores

MAKE OUR ORGANIZATION A PLACE THAT WORKS WELL

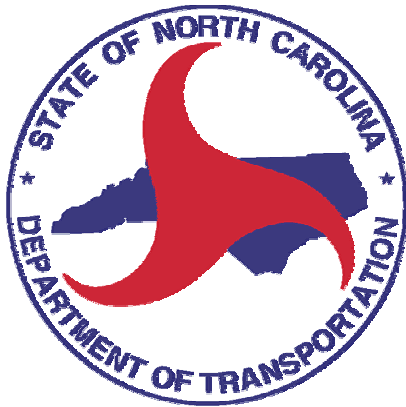
Make our
organization
a place that
works well



MAKE OUR ORGANIZATION A GREAT PLACE TO WORK



Performance Metrics for Operations



Presented by
Victor Barbour, PE

“Connecting People & Places in North Carolina”

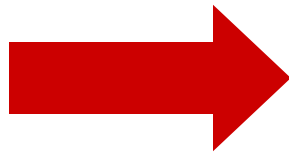
- Transformation Initiatives
- Value Trees
- Performance Metrics
 - Metric Examples
 - Leading and Lagging Metrics
- Performance Dashboard Appraisal (PDA)

Five Key Transformation Initiatives

Strategic Direction

Program and Project Delivery

Planning and Prioritization



Performance and Accountability

Improved Human Resource Mgt

Mission, Goals and Values

NCDOT

OUR MISSION

*Connecting people and places
in North Carolina – safely and
efficiently, with accountability
and environmental sensitivity*

OUR GOALS

- Make our transportation network **safer**
- Make our transportation network move people and goods more **efficiently**
- Make our infrastructure **last longer**
- Make our organization a place that **works well**
- Make our organization **a great place to work**



OUR VALUES

- **SAFETY** - We strive for safety throughout our transportation networks as well as in our work and our daily lives.
- **CUSTOMER SERVICE** - We respond to our customers, both internal and external, in an open, professional and timely manner.
- **INTEGRITY** - We earn and maintain trust by responsibly managing the states assets, acting ethically, and holding ourselves accountable for our actions.
- **DIVERSITY** - We draw strength from our differences and work together in a spirit of teamwork and mutual respect.
- **QUALITY** - We pursue excellence in delivering our projects, programs, services and initiatives.

Values are

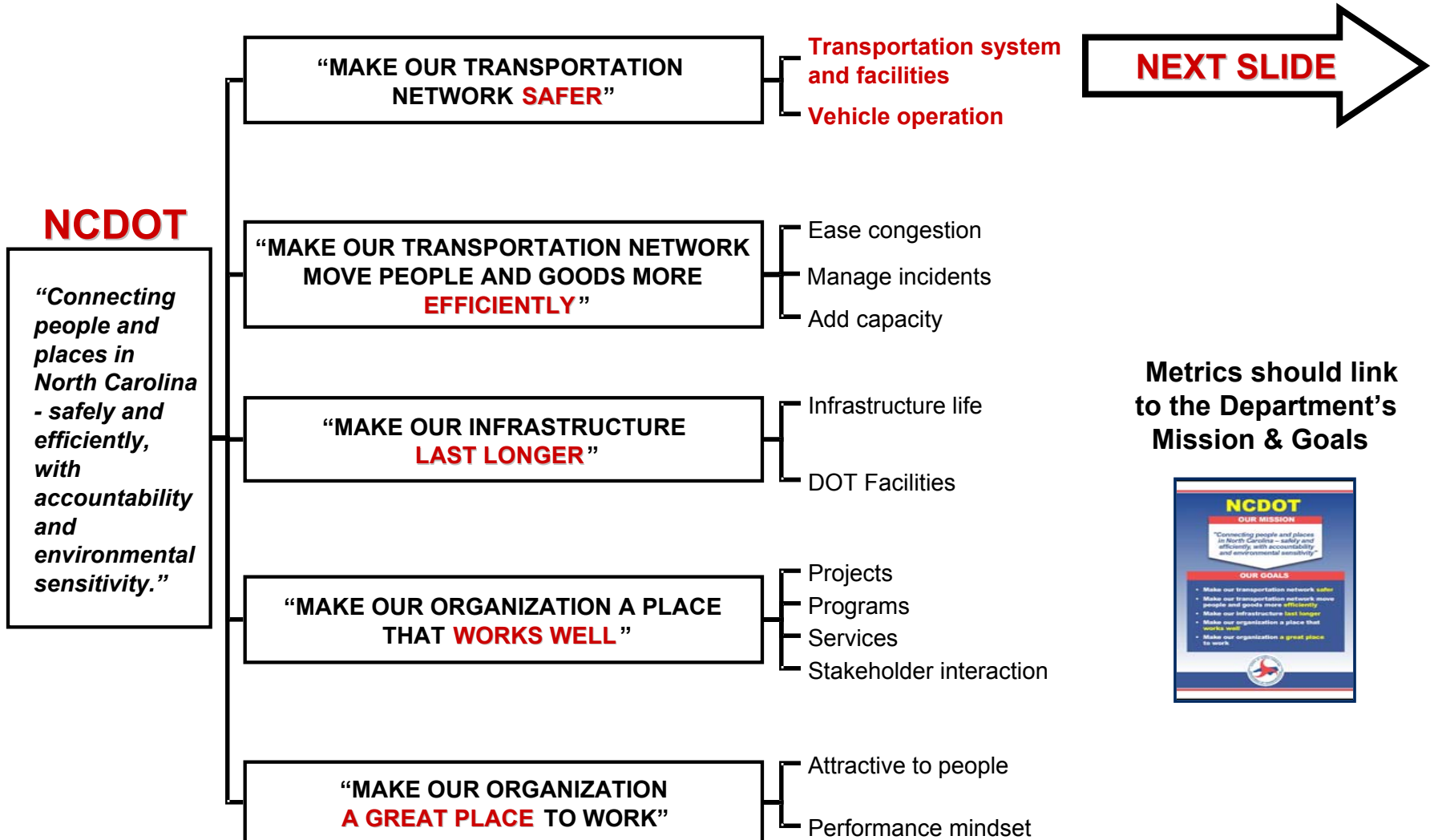
- What an organization stands for and believes in
- Behavioral expectations
- Manner in which we conduct our business



*Measuring our performance
and reporting our successes...*

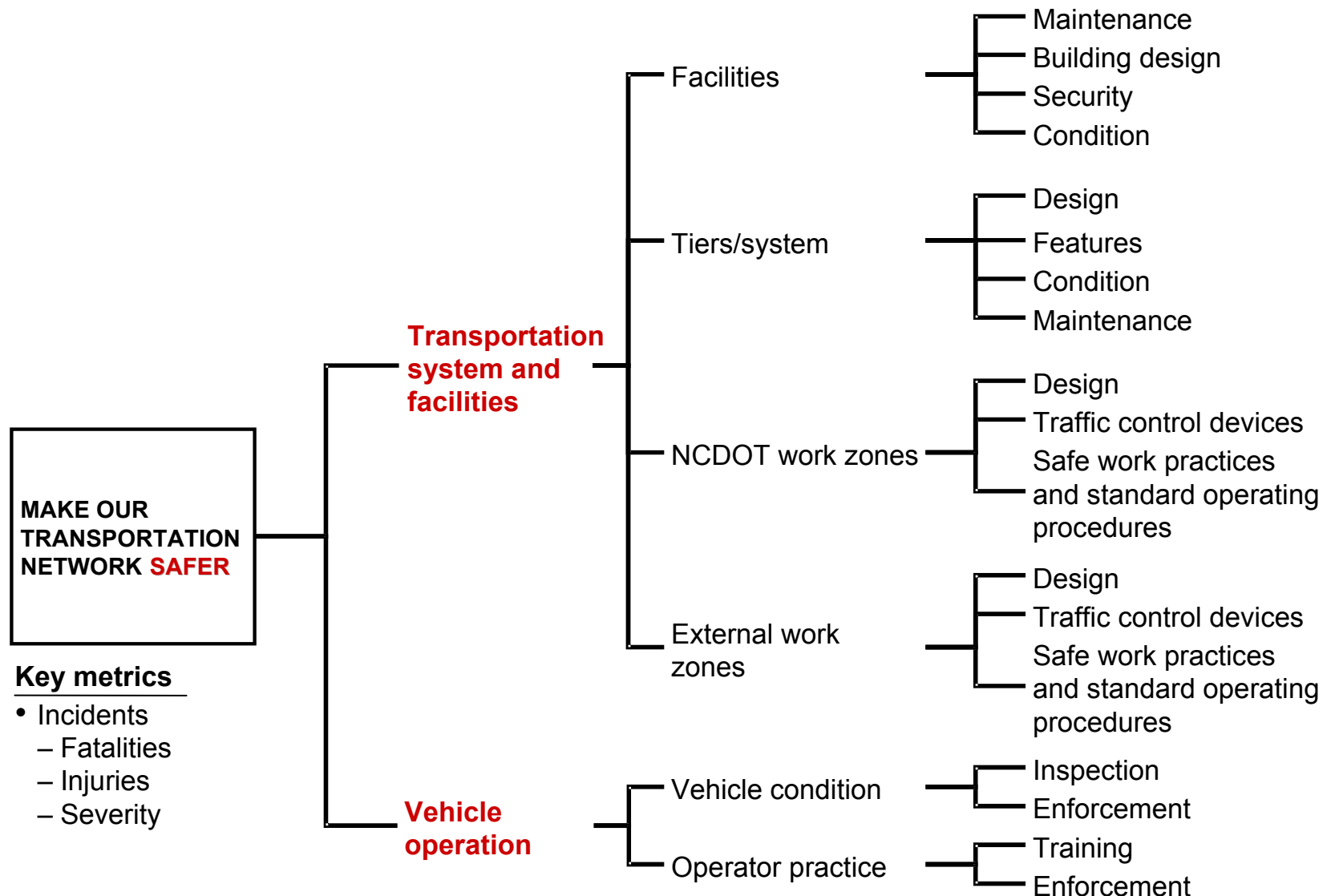


NCDOT High Level Value Tree



Make Our Transportation Network **SAFER**

Safety Value Tree



Performance Metrics

A standard of measurement that is a measurable category of performance, such as

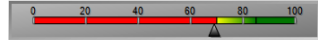
- Crash rates
- Customer service
- Project delivery
- Infrastructure level of service

Programs > NCDOT Dashboard >
Delivery Rate

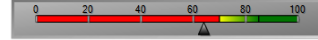
This page displays the Department's success rate for delivering the Transportation Improvement Program (TIP) and environmental compliance programs. These items are indicators of how well the Department is delivering its planning, design, construction and maintenance activities while protecting the state's natural resources.

TIP Preconstruction

% of Plans Completed and Bids Opened On Time:

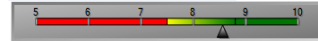


% Right of Way Acquisitions Begun On Time:



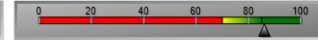
Environmental

Average State Environmental Inspection Score:

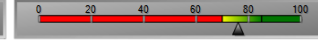


TIP Construction

% Active Construction Projects On Schedule:



% Active Construction Projects On Budget:



More information on [how we get these numbers](#).

For questions / comments regarding the Delivery Rate section of the NCDOT Dashboard please [Contact Us](#).

Crash Details statewide

Filter By:
Statewide



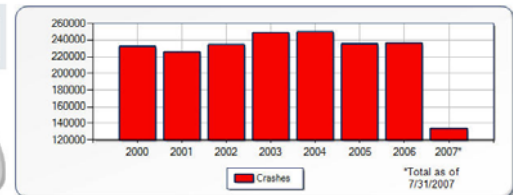
Total as of 7/31/2007



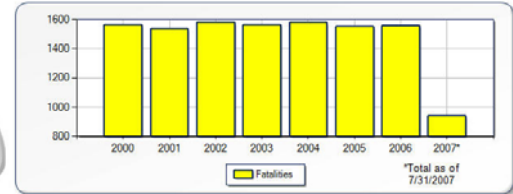
Total as of 7/31/2007



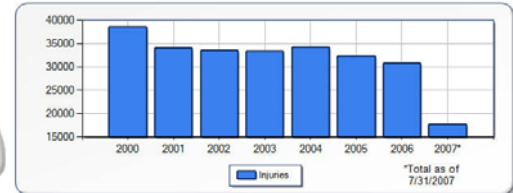
Total as of 7/31/2007



*Total as of 7/31/2007



*Total as of 7/31/2007



*Total as of 7/31/2007

Yearly Statistics

	2000	2001	2002	2003	2004	2005	2006	2007*
Crashes	231647	225607	234478	249564	249155	234816	236326	132556
Fatalities	1501	1533	1577	1501	1570	1550	1555	936
Injuries	38464	34070	33424	33337	34213	32192	30786	17547
VMT (100MVM)	892.46	915.71	936.86	937.63	956.27	1008.81	1016.48	610.14
	259.56	246.37	250.28	285.1	280.55	232.81	232.49	218.89
Crash Rate	1.75	1.67	1.66	1.66	1.65	1.54	1.53	1.53
Fatality Rate	43.1	37.21	35.68	35.55	35.76	31.92	30.27	28.76
Injury Rate								

1: VMT=Vehicle Miles Traveled, MVM=Million Vehicle Miles.

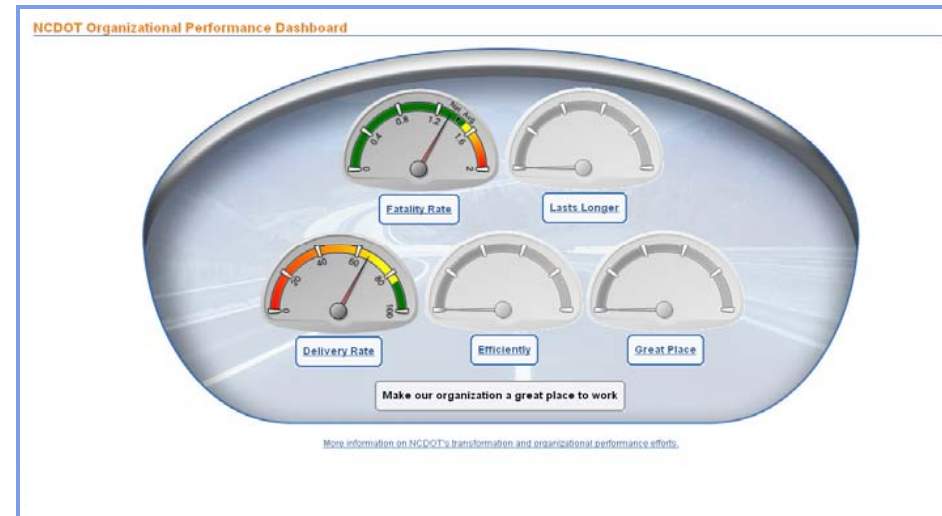
* Total Year to Date

Data current as of: 7/31/2007

More information on [how we get these numbers](#).

NCDOT Performance Metrics are used to:

- Measure process results
- Establish goals
- Gauge performance throughout organization



Performance Metrics Consist of a...

- **Measure** - results of action to be gauged related to Mission & Goals
- **Target** - desired level of achievement
- **Weight** - level of importance (%)

Section A. Performance Metrics									
Performance Cycle Date:									
Name:		Unit/Section:							
Classification/Title:		Supervisor's Name:							
NCDOT Goals: (1) Make our transportation network safer . (2) Make our transportation network move people and goods more efficiently . (3) Make our infrastructure last longer . (4) Make our organization a place that works well . (5) Make our organization a great place to work.									
Enter NCDOT Goal (1-5 above)	Performance Metrics (Results Expectations)			Progress Reviews			Year End		
	Measure	Target	% Weight	Review Date:	Review Date:	Review Date:	Actual Results	Number Rating *1, 2, 3	Weighted Rating % Weight x No. Rating
1	Crash Rates	238-230	5						
2	Reliability of Strategic Highway Corridor and Regional Tier Routes	TBD	0						
3	Division Infrastructure Health	C- to C	40						
4	Projects/Programs/Services on Schedule and on Budget	70-89%	40						
4	Customer Service	70-89%	5						
4	Fiscal Management	90-95%	5						
5	Employee Safety	6.1-7	5						
5	Employee Satisfaction	TBD	0						
5	Retaining, Developing, and Retaining Employees	TBD	0						
			Total % must = 100	100%	Combined Weighted Rating =				
			Sum of % weights that received a number rating of "1" at year end						
*Number Rating Key: 1 = Does not meet expectations 2 = Meets expectations 3 = Exceeds expectations									
Beginning of performance cycle: Signatures indicate supervisor and employee have discussed performance metrics, NCDOT values and leadership competencies.									
Supervisor's signature:			Title:		Date:				
Employee's signature:			Date:						

Performance Metrics

SECRETARY OF TRANSPORTATION

	Metrics	Definition of Measure/Comments
“Make our transportation network safer”	<ul style="list-style-type: none"> Fatalities 	<ul style="list-style-type: none"> % improvement in fatalities compared to national goal of 1.0 fatality per 100 million vehicle miles traveled
“Make our transportation network move people and goods more efficiently”	<ul style="list-style-type: none"> Reliability on the System Strategic Highway Corridors and Regional Tier Routes Transit Service 	<ul style="list-style-type: none"> Average operating speeds on Strategic Highway Corridors (SHC) Travel time reliability - standard deviation of average commuter time in selected urban areas % Decrease in congestion % Increase in Frequency of Service
“Make our infrastructure last longer”	<ul style="list-style-type: none"> Department Infrastructure Health 	<ul style="list-style-type: none"> Statewide Level of Service Scores for Facilities (assets) % Increase in value of Department infrastructure
“Make our organization a place that works well”	<ul style="list-style-type: none"> Project/Program Delivery on Schedule and Budget Business Development & Outreach Customer Service Fiscal Management 	<ul style="list-style-type: none"> % of projects and programs administered, managed and constructed on schedule and on budget (Planned vs. Actual) % of solicitations sent to, % of bids received from, & % of contract dollars awarded to DBEs, MBEs, WBEs, SBEs, and HUBs Customer survey scores (public, partners, etc.) % improvement of existing overhead and program budget
“Make our organization a great place to work”	<ul style="list-style-type: none"> Employee Safety Employee Satisfaction Recruiting, developing and retaining employees 	<ul style="list-style-type: none"> Number of incidents, lost work days, worker's comp claims Employee satisfaction survey composite score Retention rate of “Top Performers” and/or stabilization rate

“DRAFT” Metrics – Secretary of Transportation

GUIDE FOR DASHBOARD SCORECARD

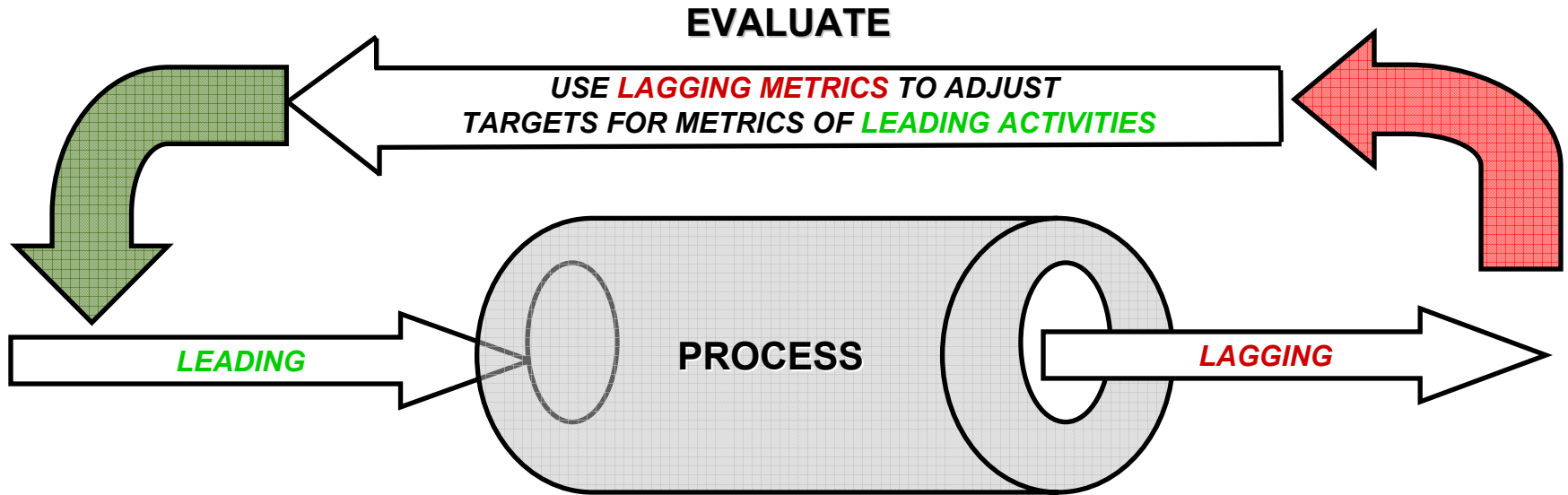
FOR USE IN PERFORMANCE REVIEW MEETINGS

	Metric	Metric Data	Target	Data Source	Wt (%)
Safer	Fatalities	<i>Fatalities per 100 million vehicle miles; i.e. 1.58...this will be compared against a baseline TBD (% improvement)</i>	1.50-1.63	Traffic Engineering Branch	10
Efficiently	Reliability of Strategic Highway Corridor System	-Average operating speeds on Strategic Highway Corridors (SHC) -Travel time reliability -Congestion (Level of Service)		Transportation Planning Branch	
	Transit Service	% Increase in Frequency of Service compared to previous year for Rail, Ferry, Public Transit, etc.	70-89%	Transit	5
Last Longer	Department Infrastructure Health	- Composite Statewide Rating (Level of Service Rating) - % annual increase in value of Department infrastructure	C-to-C	- Asset Management-Maintenance Condition Reports - Financial Management Division	25
Works Well	Projects/Programs/Services on Schedule and on Budget	# of projects/programs/services planned for year divided by # actual completed = % success rate	70-89%	Program Development report from STaRS and/or BW, HiCAMS	25
	Business Development and Outreach	% Contract dollars awarded to DBEs, MBEs, WBEs, SBEs, & HUBs	70-89%	SAP	10
	Customer Service	Customer survey scores (public, partners, etc.)	70-89%	TBD	5
	Fiscal Management	% improvement of administrative budget(s)	90-95%	TBD	10
Great Place to Work	Employee Safety	# of reported incidents that cause lost work days and/or worker's comp claims compared to baseline, i.e. previous year(s) reported incidents	6.1-7	Safety and Loss Control	10
	Employee Satisfaction	TBD		Employee Survey	
	Recruiting, developing and retaining employees	Retention rate of "Top Performers" and/or stabilization rate		TBD WORKING DRAFT 10/25/07; 12/7/07	

Metrics: Leading vs. Lagging

LEADING INDICATORS (Input)	LAGGING INDICATORS (Outcomes)
<p>Leading Indicators are metrics that are task specific</p> <p>Leading Indicators measure and track performance before a problem arises</p> <p>Leading Indicators are <u>proactive</u></p> <p>Leading Indicators indicate what may happen (future)</p> <p>Leading Indicators are a predictor to the ability to meet future goals</p>	<p>Lagging Indicators are <u>reactive</u></p> <p>Lagging Indicators are reflective and measure performance against prior goals</p> <p>Lagging Indicators indicate what has already happened (past)</p>

Metrics: LEADING vs. LAGGING Process



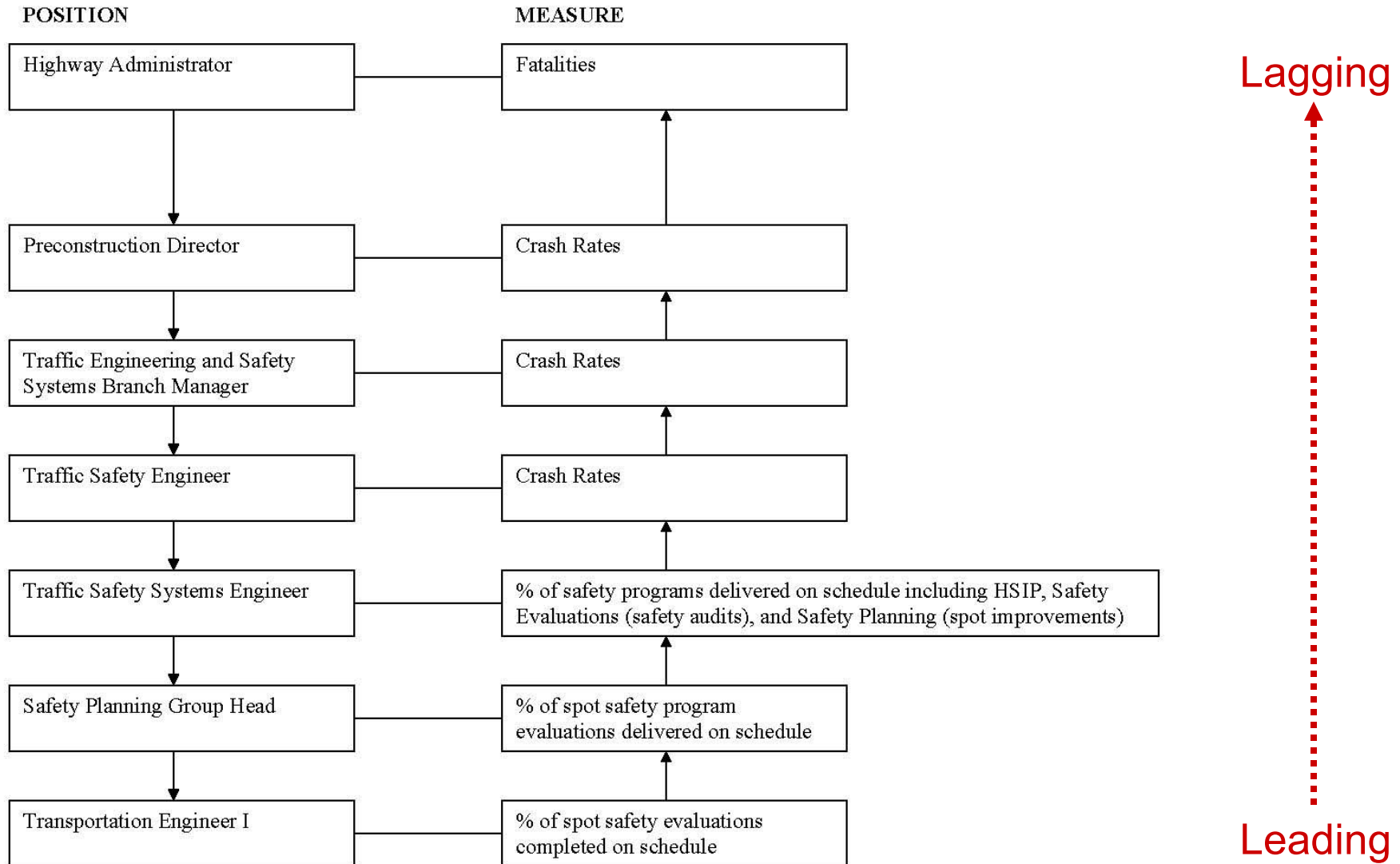
CRASH RATE

- IMPROVING SHOULDER DROP-OFFS
- ADDING REFLECTIVE MARKERS
- TURN LANE ADDITIONS
- LEGALLY LICENSED DRIVERS
- REDUCTION OF VMT BY USE OF ALTERNATIVE MODES
- TIMELY PROJECT DELIVERY

Example Cascading Metrics for Safer

Goal: Safer

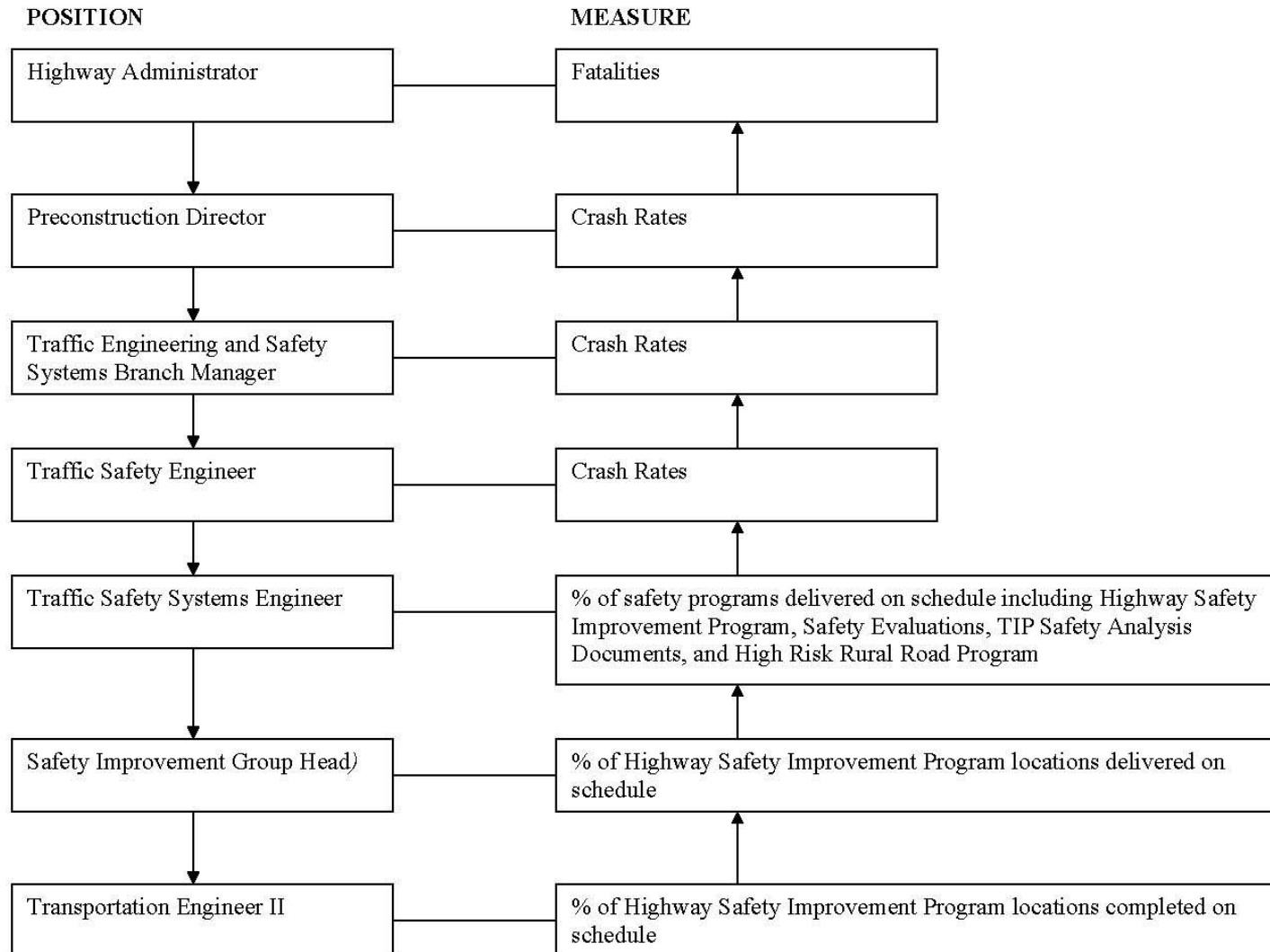
Preconstruction Example of Cascading Metrics/Measures



Example Cascading Metrics for Safer

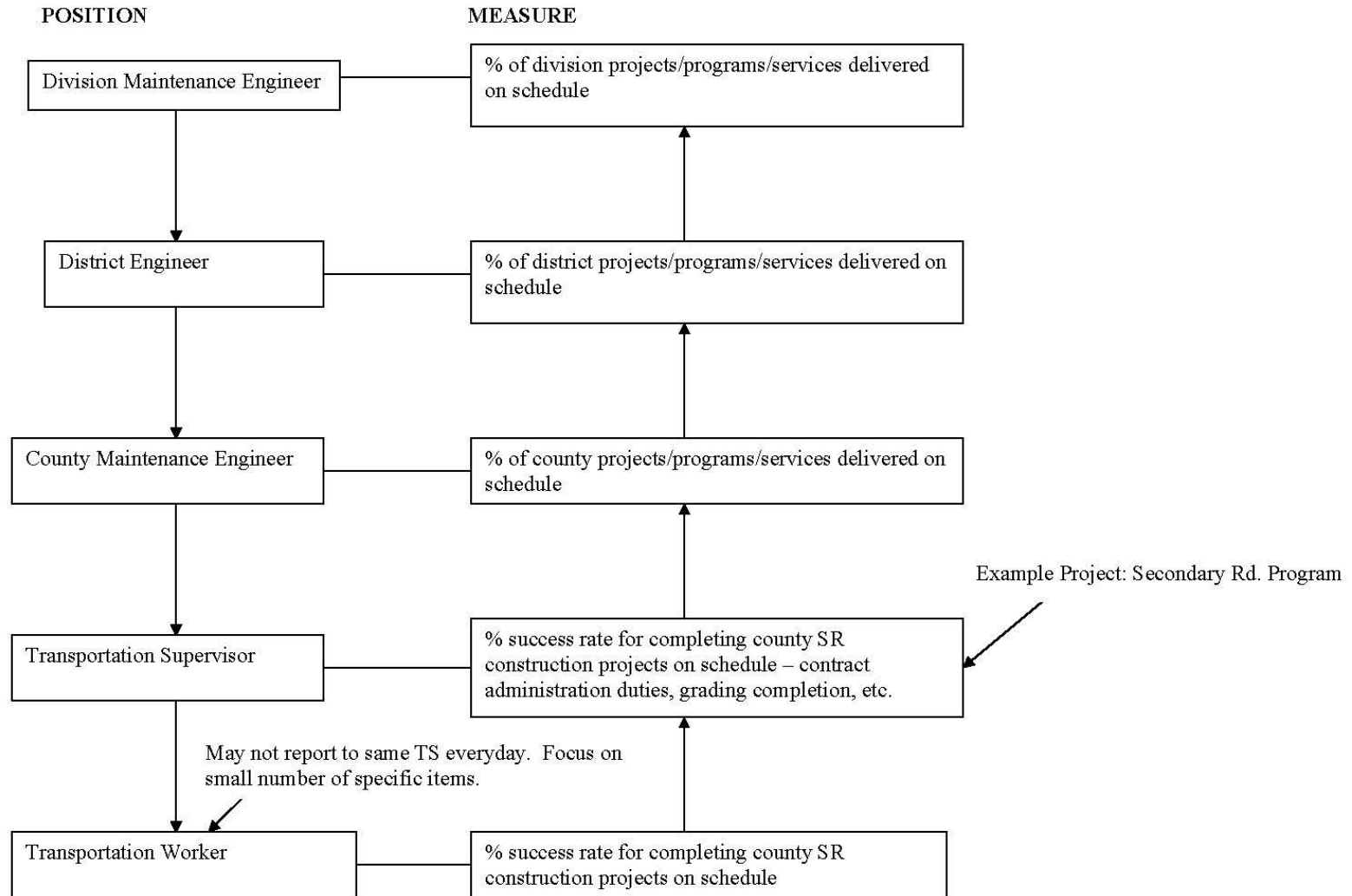
Goal: Safer

Preconstruction Example of Cascading Metrics/Measures



Example Cascading Metrics for **Well Goal**

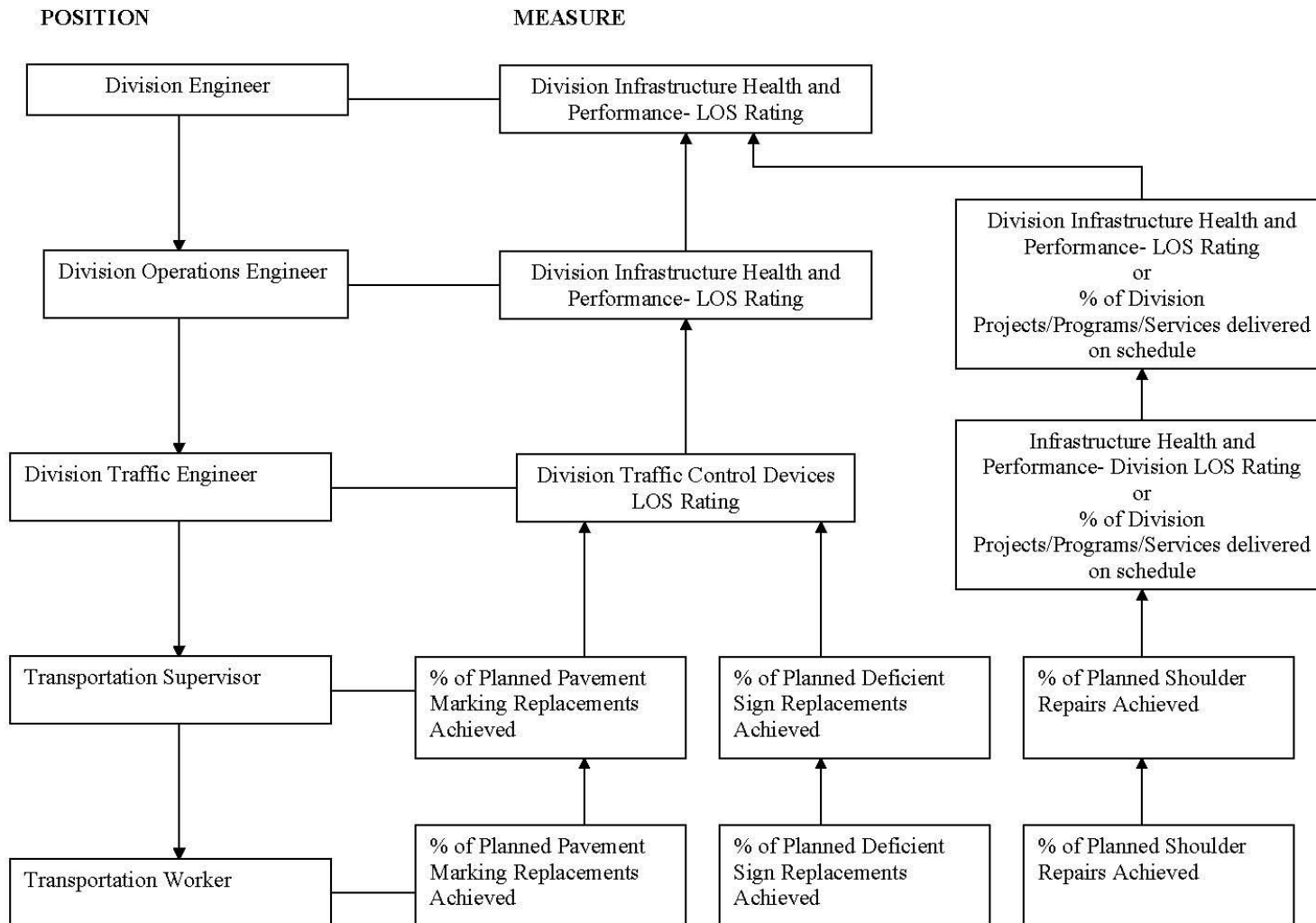
Works Well Goal



Transportation Workers have many responsibilities but only measure “Big Ticket” items (items in which the majority of time is spent). Also should include equipment operation, manual labor, dependability, interaction (teamwork)

Example Cascading Metrics for **Last Longer/Well** Goal

Works Last Longer / Well Goals



Transportation Workers have many responsibilities but only measure “Big Ticket” items (items in which the majority of time is spent). Also should include equipment operation, manual labor, dependability, interaction (teamwork)



Developing our employees by having the right people with the right set of skills in the right jobs at the right time to accomplish our mission...

Performance Dashboard Appraisal - Section A

Section A. Performance Metrics

Performance Cycle Date:			
Name:		Unit/Section:	
Classification/Title:		Supervisor's Name:	

NCDOT Goals: (1) Make our transportation network **safer**. (2) Make our transportation network move people and goods **more efficiently**. (3) Make our infrastructure **last longer**. (4) Make our organization a place that **works well**. (5) Make our organization a **great place** to work.

Enter NCDOT Goal (1-5 above)	Performance Metrics (Results Expectations)			Progress Reviews			Year End		
	Measure	Target	% Weight	Review Date: _____	Review Date: _____	Review Date: _____	Actual Results	Number Rating *1, 2, 3	Weighted Rating % Weight x No. Rating
1	Crash Rates	238-230	5						
2	Reliability of Strategic Highway Corridor and Regional Tier Routes	TBD	0						
3	Division Infrastructure Health	C- to C	40						
4	Projects/Programs/Services on Schedule and on Budget	70-89%	40						
4	Customer Service	70-89%	5						
4	Fiscal Management	90-95%	5						
5	Employee Safety	6.1-7	5						
5	Employee Satisfaction	TBD	0						
5	Retaining, Developing, and Retaining Employees	TBD	0						

Total % must = 100

100%

Combined Weighted Rating =

*Number Rating Key:

1 = Does not meet expectations

2 = Meets expectations

3 = Exceeds expectations

Sum of % weights that received a number rating of "1" at year end

Beginning of performance cycle: Signatures indicate supervisor and employee have discussed performance metrics, NCDOT values and leadership competencies.

Supervisor's signature:		Title:		Date:	
Employee's signature:		Date:			

Performance Dashboard Appraisal - Section B

Section B. NCDOT Values

Supervisor's Instructions:

At the end of the performance cycle, check "YES" or "NO" as to whether the employee adhered to each value during the performance cycle. If "NO" is checked, a description of the non-adherence must be provided in the "Comments" column.

Values (Behavioral Expectations)	Adhered to Value?		Supervisor's Comments
	YES	NO	
<u>Safety:</u> We strive for safety throughout our transportation networks as well as in our work and our daily lives.	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Customer Service:</u> We respond to our customers, both internal and external, in an open, professional and timely manner.	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Integrity:</u> We earn and maintain trust by responsibly managing the state's assets, acting ethically, and holding ourselves accountable for our actions.	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Diversity:</u> We draw strength from our differences and work together in a spirit of teamwork and mutual respect.	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Quality:</u> We pursue excellence in delivering our projects, programs, services and initiatives.	<input type="checkbox"/>	<input type="checkbox"/>	

Performance Dashboard and Appraisal - Worksheet

Name: _____

Position/Title: _____

NCDOT Goals: (1) Make our transportation network **safer**.
(2) Make our transportation network move people and goods **more efficiently**.
(3) Make our infrastructure **last longer**.
(4) Make our organization a place that **works well**.
(5) Make our organization a **great place** to work.

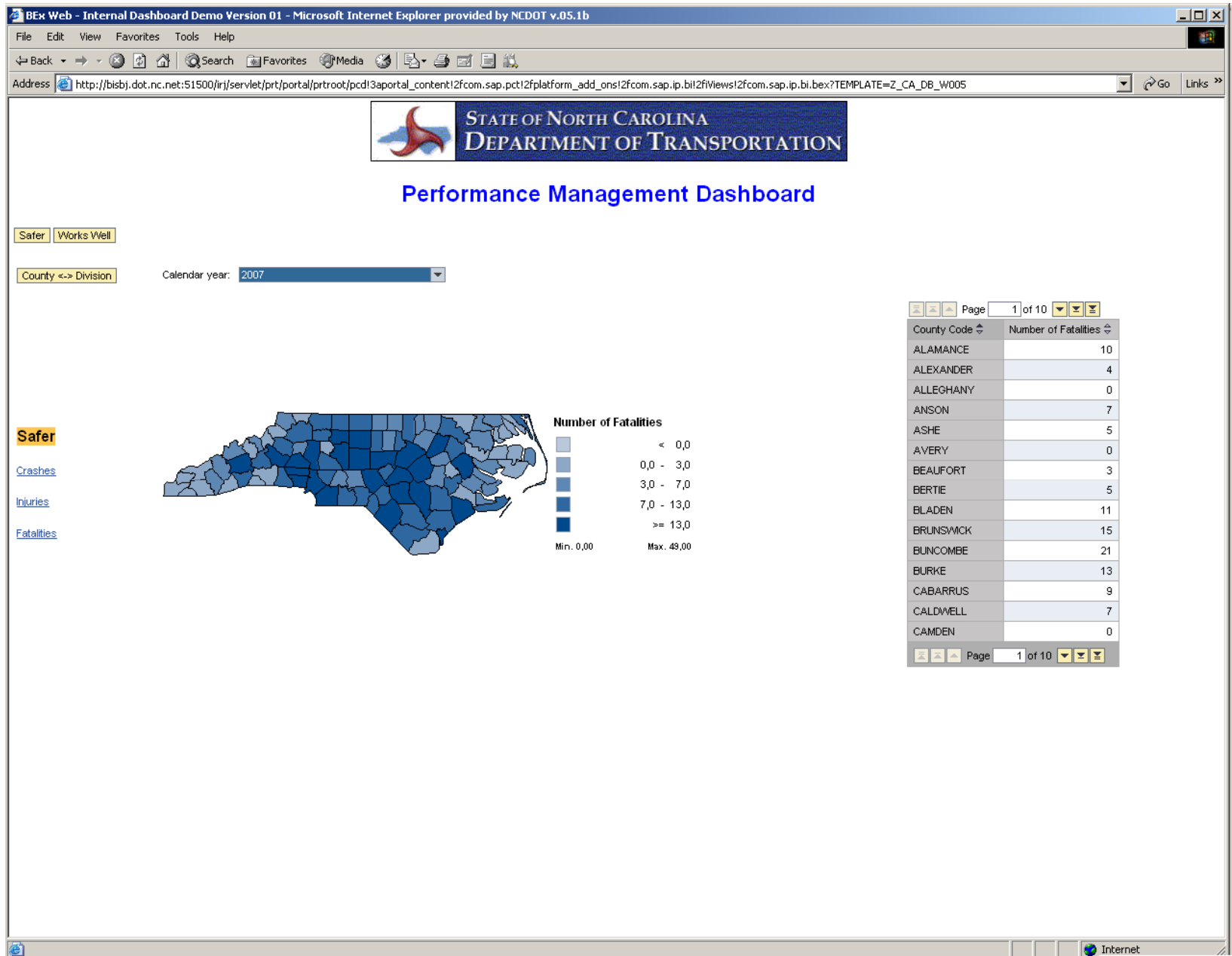
PERFORMANCE DASHBOARD AND APPRAISAL WORKSHEET

Goal	Metric	Metric Definition	Target	Data Source	Wt (%)

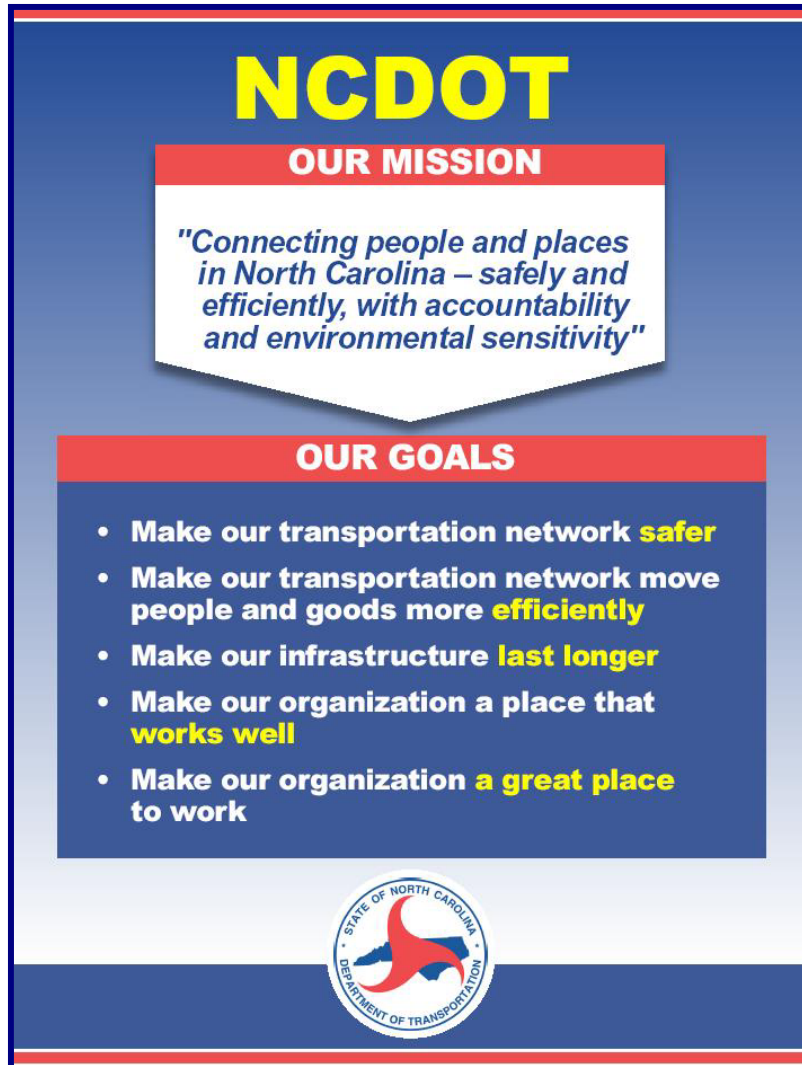
Find the worksheet on the NCDOT Intranet Portal at:

[Groups/TMT/Performance Metrics and Management/Metrics Worksheet.doc](#)

Internal Dashboard



It all comes back to....




NCDOT

OUR MISSION

"Connecting people and places in North Carolina – safely and efficiently, with accountability and environmental sensitivity"

OUR GOALS

- Make our transportation network **safer**
- Make our transportation network move people and goods more **efficiently**
- Make our infrastructure **last longer**
- Make our organization a place that **works well**
- Make our organization **a great place to work**



- Working together for a common purpose
- Planning and prioritizing our work
- Delivering our projects & programs effectively
- Measuring our performance
- Developing our employees

Fulfilling our role of
“Connecting People and
Places in North Carolina”

Name: _____

Position/Title: Chief Engineer – Operations

- NCDOT Goals:**
- (1) Make our transportation network **safer**.
 - (2) Make our transportation network move people and goods **more efficiently**.
 - (3) Make our infrastructure **last longer**.
 - (4) Make our organization a place that **works well**.
 - (5) Make our organization a **great place** to work.

PERFORMANCE DASHBOARD AND APPRAISAL WORKSHEET

Goal	Metric	Metric Definition	Target	Data Source	Sub wt.	Wt (%)
1	Crash Rate	<i>Reduce 5 Yr. Statewide Avg. (Crash Rate per 100M VMT)</i>	+/- – % State Rate	<i>Traffic Eng.</i>		5
2	System Reliability		Composite			5
	A) Incident Clearance (30%)	<i>% of Incidents Cleared within Standard on Statewide Tier Only</i>	70-85%	TIMS	1.5	
	B) Signal Timing and Maintenance (70%)	<i>% of Signals Meeting Timing and Maintenance Standards</i>	80-94%	Signal Mgmt. System	3.5	
3	Infrastructure Health and Performance		Composite			40
	A) Infrastructure Health (70%)	<i>Improve Index Score (3 year avg.) toward Goal</i>	68-72	Asset Management	28	
	B) Facility Health (10%)	<i>Statewide Avg. Condition Scores of Rest Areas and Welcome Centers</i>	90-92	Asset Management/REU	4	
	C) Construction Quality (20%)	<i>% of TIP & Centrally Let Projects Meeting Construction Quality Index Standard</i>	70-85	Construction Unit	8	
4	Programs/Projects/Services Meeting Standards		Composite			40
	A) Projects and Programs on Schedule (40%)					
		<i>1) % Central Let Projects Completed on Time (40%)</i>	70-85%	HiCAMS	6.4	
		<i>2) % Div. Let/Built Projects Completed on Time (30%)</i>	70-85%	SAP	4.8	

Goal	Metric	Metric Definition	Target	Data Source	Sub wt.	Wt (%)
4 cont.		3) % <i>Preconstruction Activities on Time (10%)</i>	70-85%	SAP/STARS	1.6	
		4) % <i>Operations Major Programs (20%)</i>			3.2	
	B) Projects and Programs on Budget (40%)					
		1) % <i>Central Let Projects Meeting Budget Standard (35%)</i>	70-85%	HiCAMS, Business Warehouse	5.6	
		2) % <i>Division Projects Meeting Budget Standard (25%)</i>	70-85%	SAP Business Warehouse	4.0	
		3) % of <i>Total Operations Budget Spent/Committed (30%)</i>	85-97 103-105	SAP	4.8	
		4) % <i>Operations Major Programs Meeting Budget Standard (10%)</i>		SAP	1.6	
	C) Business Outreach (10%)	1) % <i>Increase in Federal DBE Payout – 3 Yr. Avg (35%)</i>	+/- 10% State Actual	SAP	1.4	
		2) % <i>Increase in State MB/WB Payout – 3 Yr. Avg (65%)</i>	+/- 10% State Actual	SAP	2.6	
	D) Erosion Control/Permit Compliance (10%)	<i>Statewide Avg. Score for Construction and Maintenance Projects</i>	7.5-8.8% - No More than 2 NOV's	Asset Management	4.0	
5	Employee Safety	<i>Employee Safety Index – 3 Yr. Avg</i>	9.75-5.96	Safety and Loss Control		10

Performance Metrics: Focus Groups



“Connecting People & Places in North Carolina”

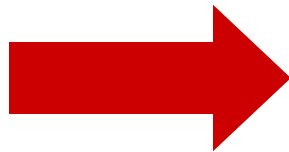
- Transformation Initiatives
- Value Trees
- Performance Metrics
 - Metric Examples
 - Leading and Lagging Metrics
- Performance Dashboard Appraisal (PDA)

Five Key Transformation Initiatives

Strategic Direction

Program and Project Delivery

Planning and Prioritization



Performance and Accountability

Improved Human Resource Mgt

Mission, Goals and Values

NCDOT

OUR MISSION

*Connecting people and places
in North Carolina – safely and
efficiently, with accountability
and environmental sensitivity*

OUR GOALS

- Make our transportation network **safer**
- Make our transportation network move people and goods more **efficiently**
- Make our infrastructure **last longer**
- Make our organization a place that **works well**
- Make our organization **a great place to work**



OUR VALUES

- **SAFETY** - We strive for safety throughout our transportation networks as well as in our work and our daily lives.
- **CUSTOMER SERVICE** - We respond to our customers, both internal and external, in an open, professional and timely manner.
- **INTEGRITY** - We earn and maintain trust by responsibly managing the states assets, acting ethically, and holding ourselves accountable for our actions.
- **DIVERSITY** - We draw strength from our differences and work together in a spirit of teamwork and mutual respect.
- **QUALITY** - We pursue excellence in delivering our projects, programs, services and initiatives.

Values are

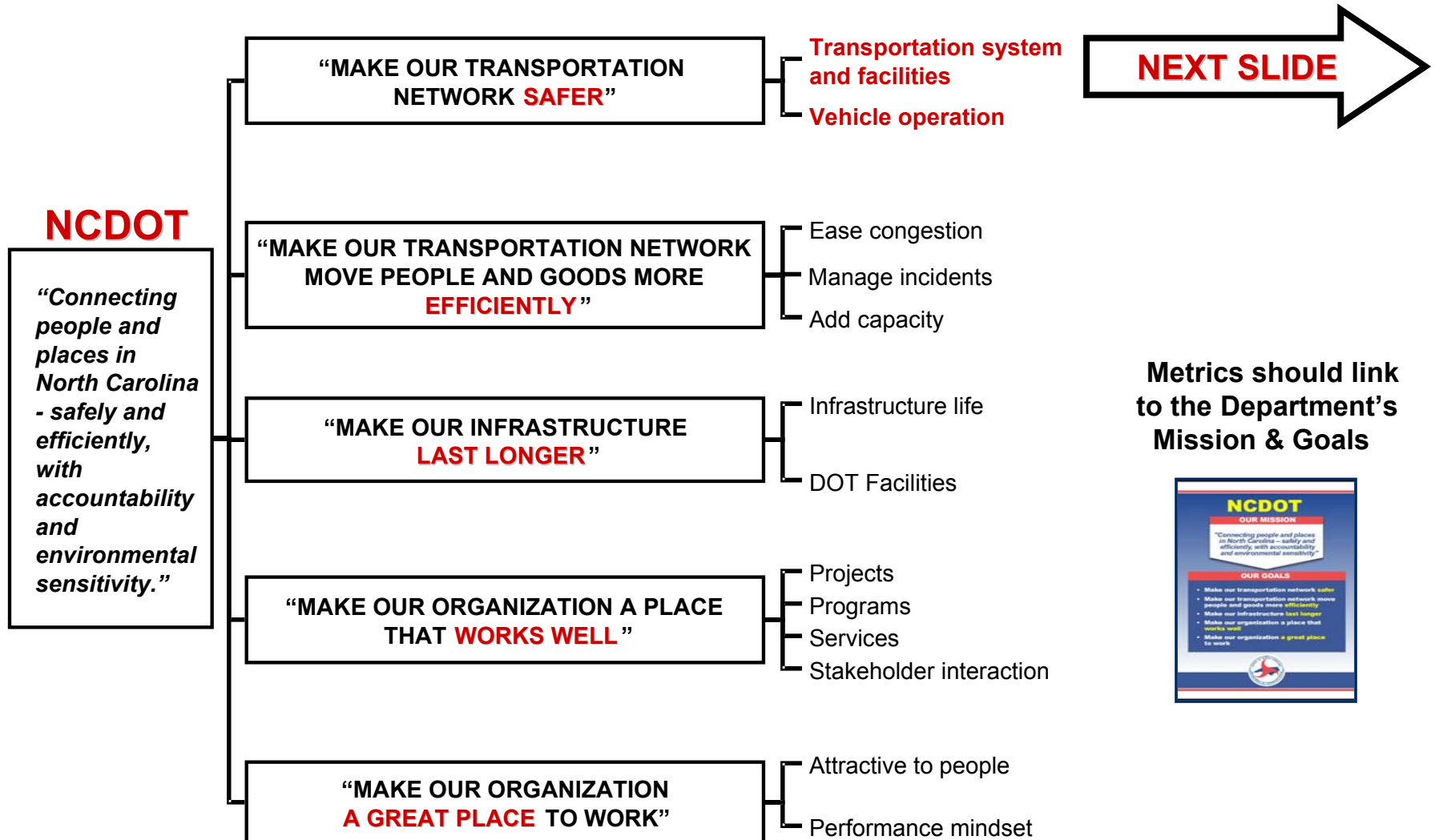
- What an organization stands for and believes in
- Behavioral expectations
- Manner in which we conduct our business



*Measuring our performance
and reporting our successes...*

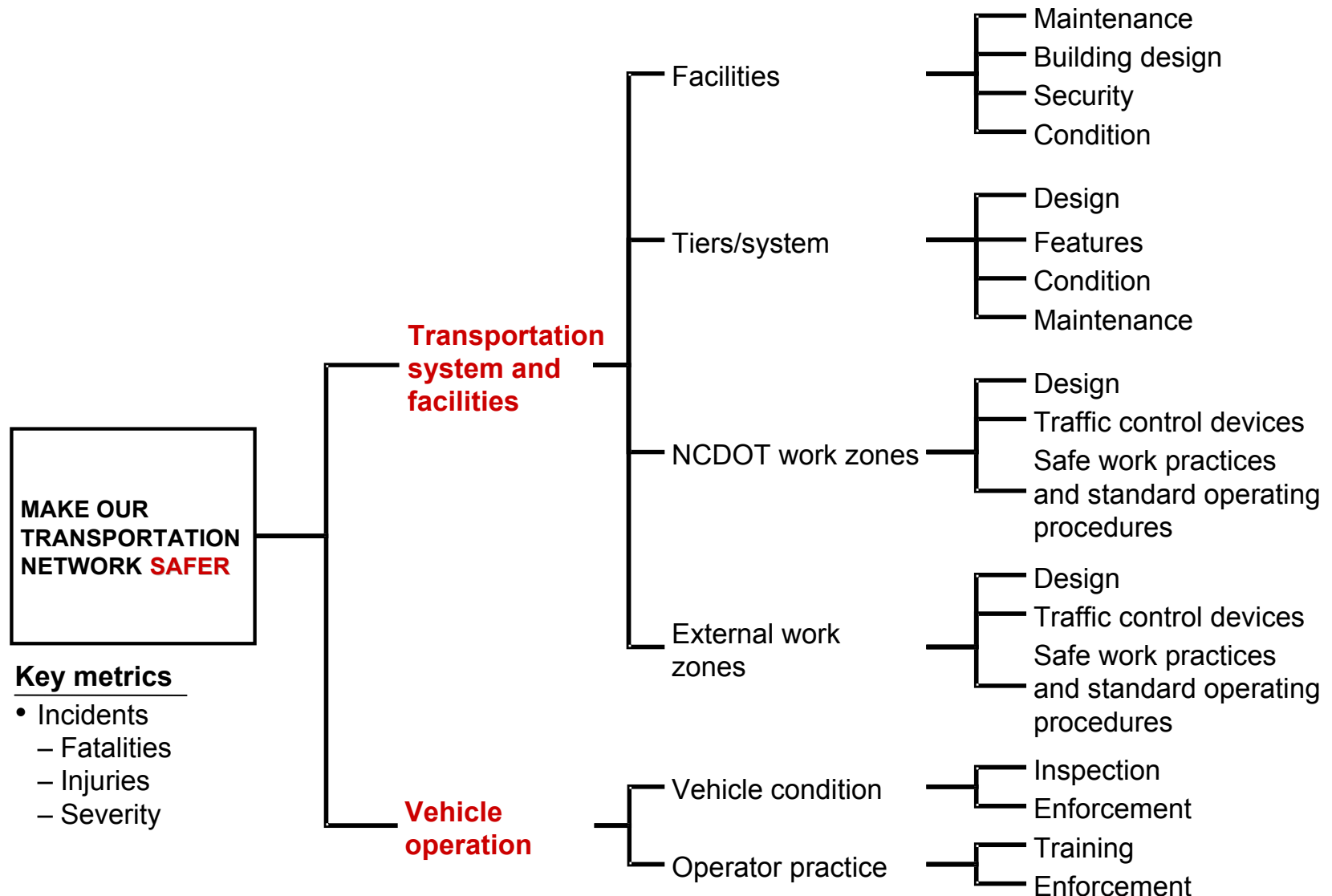


NCDOT High Level Value Tree



Make Our Transportation Network **SAFER**

Safety Value Tree



Performance Metrics

A standard of measurement that is a measurable category of performance, such as

- Crash rates
- Customer service
- Project delivery
- Infrastructure level of service

Programs > NCDOT Dashboard >
Delivery Rate

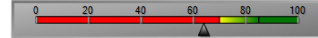
This page displays the Department's success rate for delivering the Transportation Improvement Program (TIP) and environmental compliance programs. These items are indicators of how well the Department is delivering its planning, design, construction and maintenance activities while protecting the state's natural resources.

TIP Preconstruction

% of Plans Completed and Bids Opened On Time:

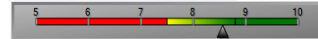


% Right of Way Acquisitions Begun On Time:



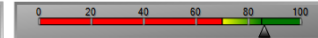
Environmental

Average State Environmental Inspection Score:

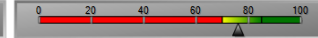


TIP Construction

% Active Construction Projects On Schedule:



% Active Construction Projects On Budget:



More information on [how we get these numbers](#).

For questions / comments regarding the Delivery Rate section of the NCDOT Dashboard please [Contact Us](#).

Crash Details statewide

Filter By:
Statewide



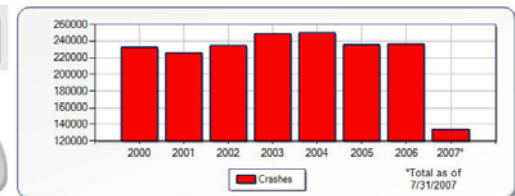
Total as of 7/31/2007



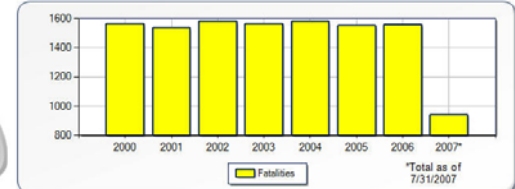
Total as of 7/31/2007



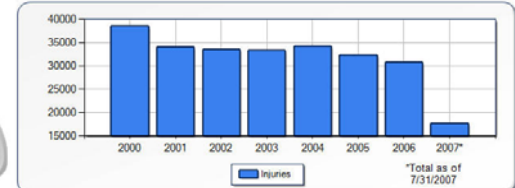
Total as of 7/31/2007



*Total as of 7/31/2007



*Total as of 7/31/2007



*Total as of 7/31/2007

Yearly Statistics

	2000	2001	2002	2003	2004	2005	2006	2007*
Crashes	231647	225607	234478	240564	249155	234816	236326	132556
Fatalities	1501	1533	1577	1501	1570	1550	1555	936
Injuries	38464	34070	33424	33337	34213	32192	30786	17547
VMT (100MVM)	892.46	915.71	936.86	937.63	956.27	1008.81	1016.48	610.14
	259.56	246.37	250.28	285.1	280.55	232.81	232.49	218.89
Crash Rate	1.75	1.67	1.68	1.66	1.65	1.54	1.53	1.53
Fatality Rate	43.1	37.21	35.68	35.55	35.76	31.92	30.27	28.76
Injury Rate								

1: VMT=Vehicle Miles Traveled, MVM=Million Vehicle Miles.

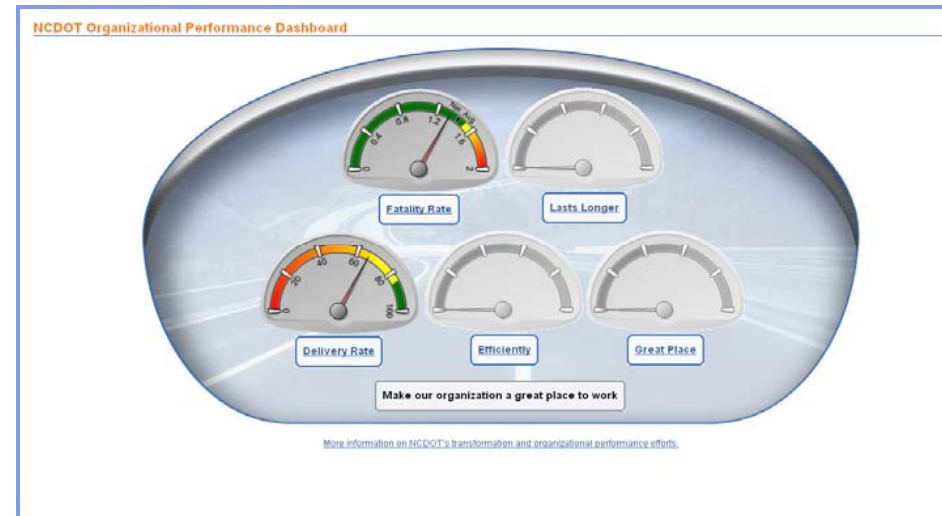
* Total Year to Date

Data current as of: 7/31/2007

More information on [how we get these numbers](#).

NCDOT Performance Metrics are used to:

- Measure process results
- Establish goals
- Gauge performance throughout organization



Performance Metrics Consist of a...

- **Measure** - results of action to be gauged related to Mission & Goals
- **Target** - desired level of achievement
- **Weight** - level of importance (%)

Section A. Performance Metrics									
Performance Cycle Date:									
Name:		Unit/Section:							
Classification/Title:		Supervisor's Name:							
NCDOT Goals: (1) Make our transportation network safer . (2) Make our transportation network move people and goods more efficiently . (3) Make our infrastructure last longer . (4) Make our organization a place that works well . (5) Make our organization a great place to work.									
Enter NCDOT Goal (1-5 above)	Performance Metrics (Results Expectations)			Progress Reviews			Year End		
	Measure	Target	% Weight	Review Date:	Review Date:	Review Date:	Actual Results	Number Rating *1, 2, 3	Weighted Rating % Weight x No. Rating
1	Crash Rates	238-230	5						
2	Reliability of Strategic Highway Corridor and Regional Tier Routes	TBD	0						
3	Division Infrastructure Health	C- to C	40						
4	Projects/Programs/Services on Schedule and on Budget	70-89%	40						
4	Customer Service	70-89%	5						
4	Fiscal Management	90-95%	5						
5	Employee Safety	6.1-7	5						
5	Employee Satisfaction	TBD	0						
5	Retaining, Developing, and Retaining Employees	TBD	0						
			Total % must = 100	100%	Combined Weighted Rating =				
			Sum of % weights that received a number rating of "1" at year end						
*Number Rating Key: 1 = Does not meet expectations 2 = Meets expectations 3 = Exceeds expectations									
Beginning of performance cycle: Signatures indicate supervisor and employee have discussed performance metrics, NCDOT values and leadership competencies.									
Supervisor's signature:			Title:		Date:				
Employee's signature:			Date:						

Performance Metrics

SECRETARY OF TRANSPORTATION

	Metrics	Definition of Measure/Comments
“Make our transportation network safer”	<ul style="list-style-type: none"> Fatalities 	<ul style="list-style-type: none"> % improvement in fatalities compared to national goal of 1.0 fatality per 100 million vehicle miles traveled
“Make our transportation network move people and goods more efficiently”	<ul style="list-style-type: none"> Reliability on the System Strategic Highway Corridors and Regional Tier Routes Transit Service 	<ul style="list-style-type: none"> Average operating speeds on Strategic Highway Corridors (SHC) Travel time reliability - standard deviation of average commuter time in selected urban areas % Decrease in congestion % Increase in Frequency of Service
“Make our infrastructure last longer”	<ul style="list-style-type: none"> Department Infrastructure Health 	<ul style="list-style-type: none"> Statewide Level of Service Scores for Facilities (assets) % Increase in value of Department infrastructure
“Make our organization a place that works well”	<ul style="list-style-type: none"> Project/Program Delivery on Schedule and Budget Business Development & Outreach Customer Service Fiscal Management 	<ul style="list-style-type: none"> % of projects and programs administered, managed and constructed on schedule and on budget (Planned vs. Actual) % of solicitations sent to, % of bids received from, & % of contract dollars awarded to DBEs, MBEs, WBEs, SBEs, and HUBs Customer survey scores (public, partners, etc.) % improvement of existing overhead and program budget
“Make our organization a great place to work”	<ul style="list-style-type: none"> Employee Safety Employee Satisfaction Recruiting, developing and retaining employees 	<ul style="list-style-type: none"> Number of incidents, lost work days, worker's comp claims Employee satisfaction survey composite score Retention rate of “Top Performers” and/or stabilization rate

“DRAFT” Metrics – Secretary of Transportation

GUIDE FOR DASHBOARD SCORECARD

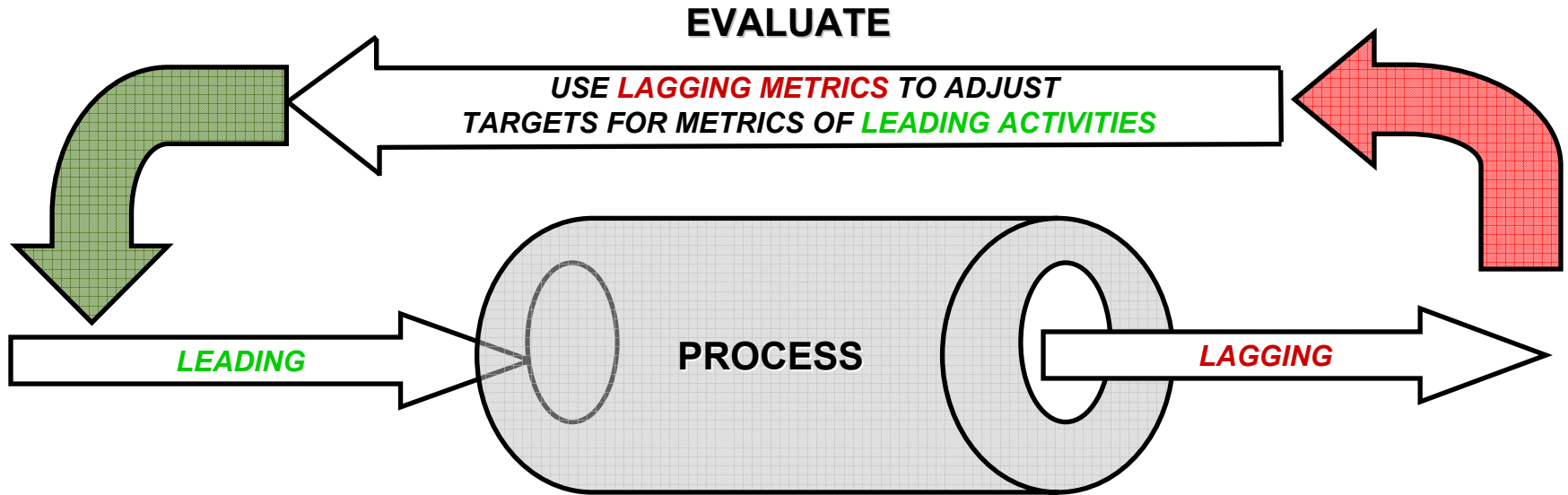
FOR USE IN PERFORMANCE REVIEW MEETINGS

	Metric	Metric Data	Target	Data Source	Wt (%)
Safer	Fatalities	<i>Fatalities per 100 million vehicle miles; i.e. 1.58...this will be compared against a baseline TBD (% improvement)</i>	1.50-1.63	Traffic Engineering Branch	10
Efficiently	Reliability of Strategic Highway Corridor System	-Average operating speeds on Strategic Highway Corridors (SHC) -Travel time reliability -Congestion (Level of Service)		Transportation Planning Branch	
	Transit Service	% Increase in Frequency of Service compared to previous year for Rail, Ferry, Public Transit, etc.	70-89%	Transit	5
Last Longer	Department Infrastructure Health	- Composite Statewide Rating (Level of Service Rating) - % annual increase in value of Department infrastructure	C-to-C	- Asset Management-Maintenance Condition Reports - Financial Management Division	25
Works Well	Projects/Programs/Services on Schedule and on Budget	# of projects/programs/services planned for year divided by # actual completed = % success rate	70-89%	Program Development report from STaRS and/or BW, HiCAMS	25
	Business Development and Outreach	% Contract dollars awarded to DBEs, MBEs, WBEs, SBEs, & HUBs	70-89%	SAP	10
	Customer Service	Customer survey scores (public, partners, etc.)	70-89%	TBD	5
	Fiscal Management	% improvement of administrative budget(s)	90-95%	TBD	10
Great Place to Work	Employee Safety	# of reported incidents that cause lost work days and/or worker's comp claims compared to baseline, i.e. previous year(s) reported incidents	6.1-7	Safety and Loss Control	10
	Employee Satisfaction	TBD		Employee Survey	
	Recruiting, developing and retaining employees	Retention rate of "Top Performers" and/or stabilization rate		TBD WORKING DRAFT 10/25/07; 12/7/07	

Metrics: Leading vs. Lagging

LEADING INDICATORS (Input)	LAGGING INDICATORS (Outcomes)
<p>Leading Indicators are metrics that are task specific</p> <p>Leading Indicators measure and track performance before a problem arises</p> <p>Leading Indicators are <u>proactive</u></p> <p>Leading Indicators indicate what may happen (future)</p> <p>Leading Indicators are a predictor to the ability to meet future goals</p>	<p>Lagging Indicators are <u>reactive</u></p> <p>Lagging Indicators are reflective and measure performance against prior goals</p> <p>Lagging Indicators indicate what has already happened (past)</p>

Metrics: LEADING vs. LAGGING Process



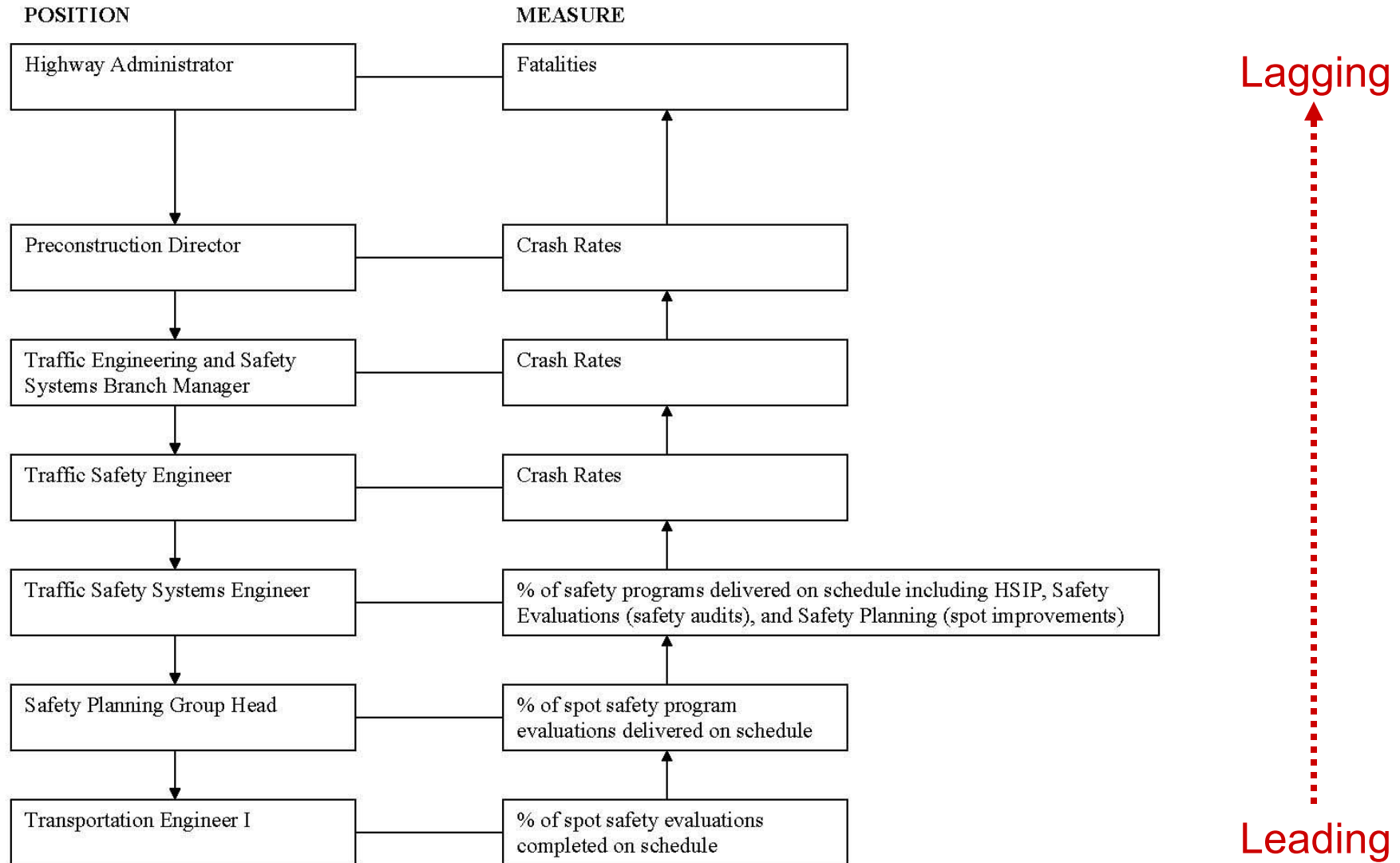
CRASH RATE

- IMPROVING SHOULDER DROP-OFFS
- ADDING REFLECTIVE MARKERS
- TURN LANE ADDITIONS
- LEGALLY LICENSED DRIVERS
- REDUCTION OF VMT BY USE OF ALTERNATIVE MODES
- TIMELY PROJECT DELIVERY

Example Cascading Metrics for Safer

Goal: Safer

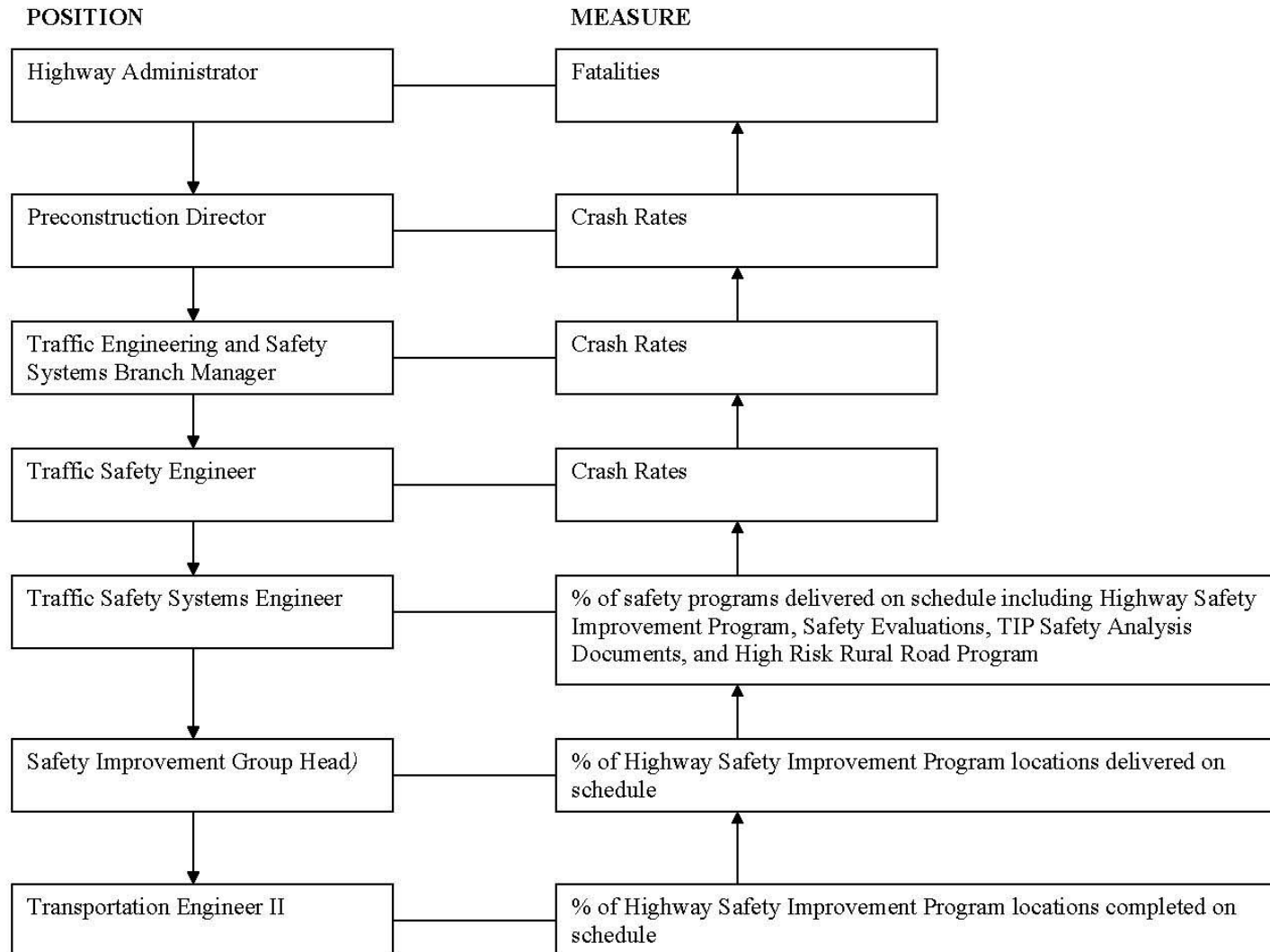
Preconstruction Example of Cascading Metrics/Measures



Example Cascading Metrics for Safer

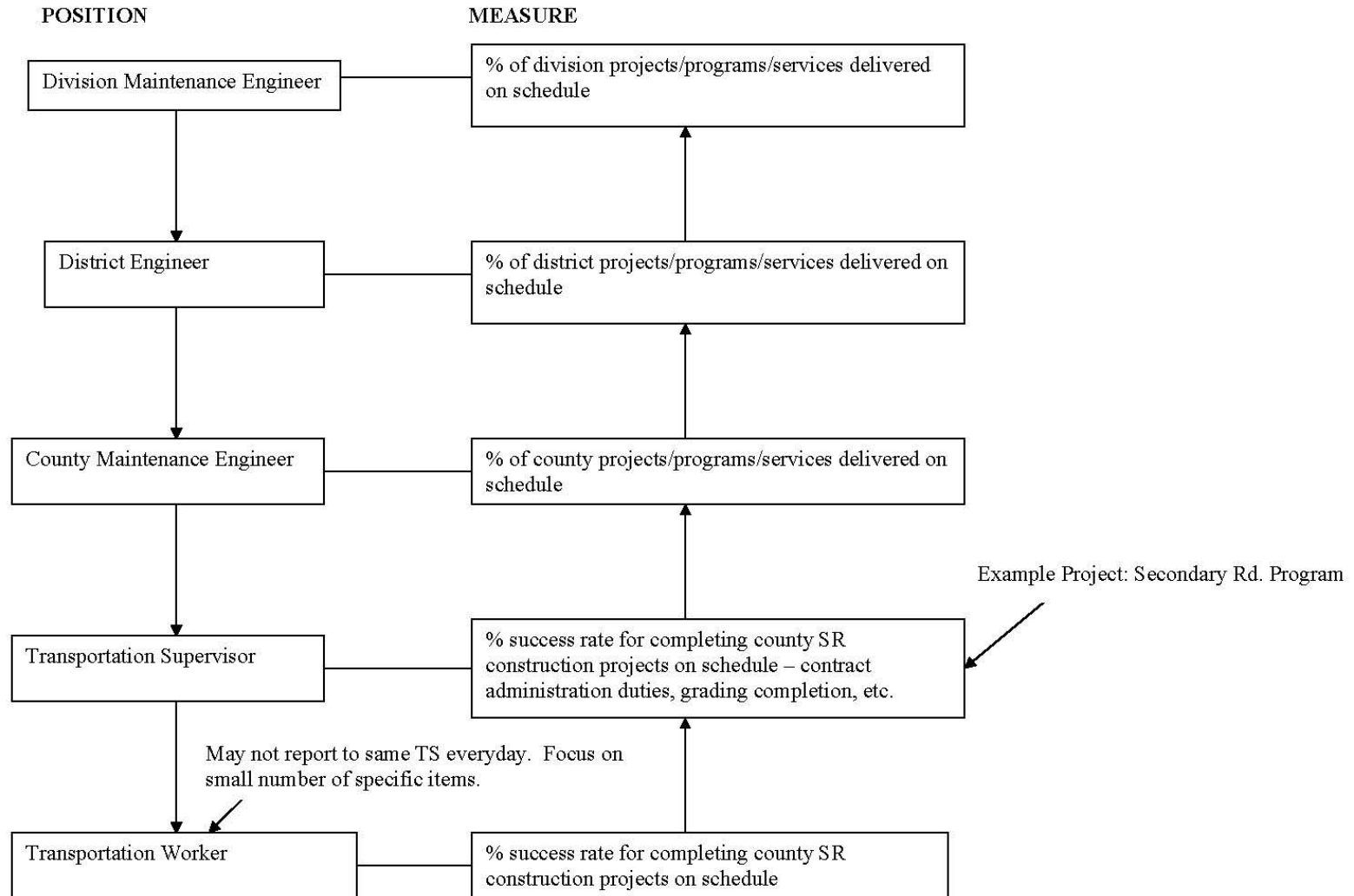
Goal: Safer

Preconstruction Example of Cascading Metrics/Measures



Example Cascading Metrics for **Well Goal**

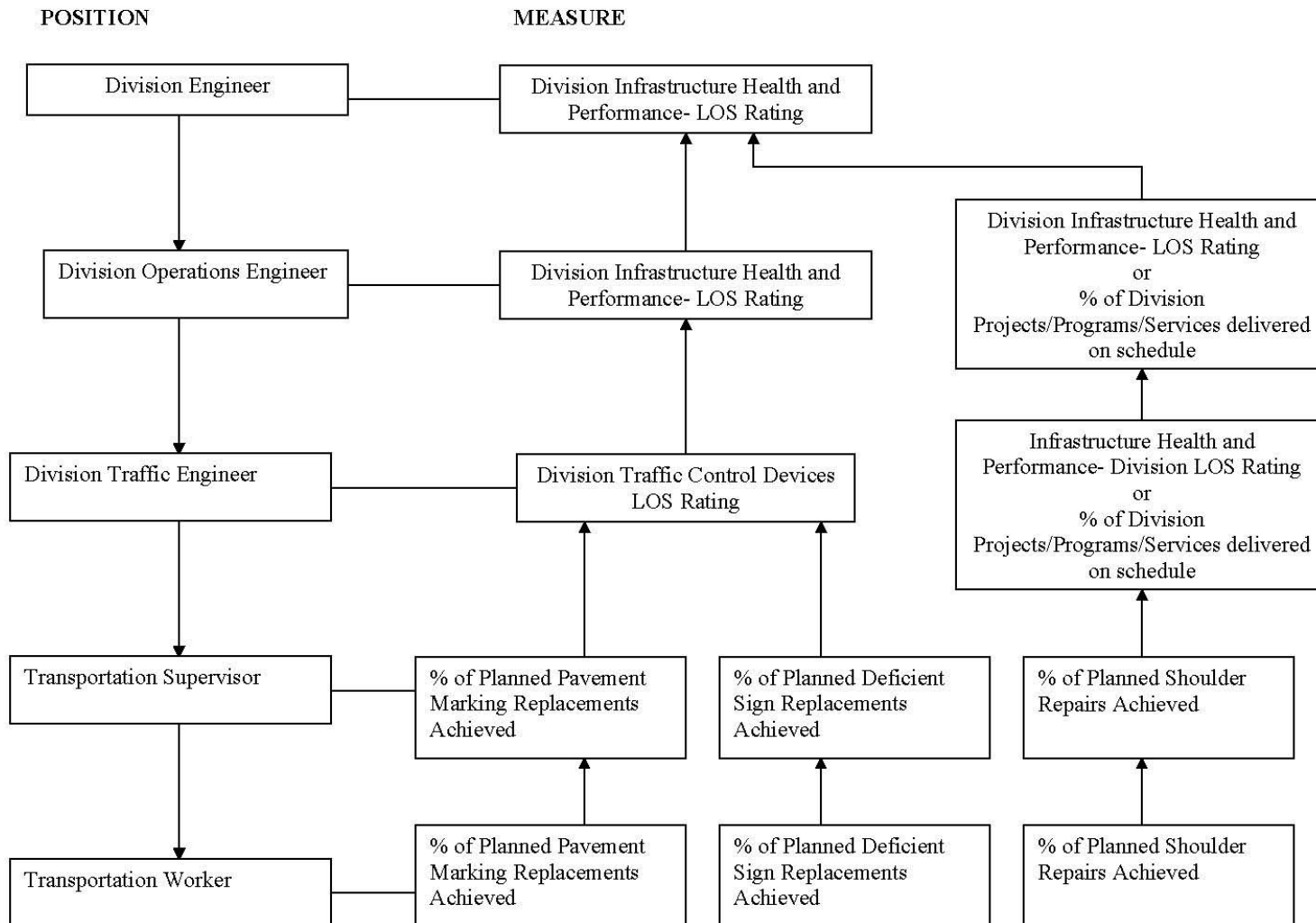
Works Well Goal



Transportation Workers have many responsibilities but only measure “Big Ticket” items (items in which the majority of time is spent). Also should include equipment operation, manual labor, dependability, interaction (teamwork)

Example Cascading Metrics for **Last Longer/Well** Goal

Works Last Longer / Well Goals



Transportation Workers have many responsibilities but only measure “Big Ticket” items (items in which the majority of time is spent). Also should include equipment operation, manual labor, dependability, interaction (teamwork)



Developing our employees by having the right people with the right set of skills in the right jobs at the right time to accomplish our mission...

Performance Dashboard Appraisal - Section A

Section A. Performance Metrics

Performance Cycle Date:			
Name:		Unit/Section:	
Classification/Title:		Supervisor's Name:	

NCDOT Goals: (1) Make our transportation network **safer**. (2) Make our transportation network move people and goods **more efficiently**. (3) Make our infrastructure **last longer**. (4) Make our organization a place that **works well**. (5) Make our organization a **great place** to work.

Enter NCDOT Goal (1-5 above)	Performance Metrics (Results Expectations)			Progress Reviews			Year End		
	Measure	Target	% Weight	Review Date: _____	Review Date: _____	Review Date: _____	Actual Results	Number Rating *1, 2, 3	Weighted Rating % Weight x No. Rating
1	Crash Rates	238-230	5						
2	Reliability of Strategic Highway Corridor and Regional Tier Routes	TBD	0						
3	Division Infrastructure Health	C- to C	40						
4	Projects/Programs/Services on Schedule and on Budget	70-89%	40						
4	Customer Service	70-89%	5						
4	Fiscal Management	90-95%	5						
5	Employee Safety	6.1-7	5						
5	Employee Satisfaction	TBD	0						
5	Retaining, Developing, and Retaining Employees	TBD	0						

Total % must = 100

100%

Combined Weighted Rating =

*Number Rating Key:

1 = Does not meet expectations

2 = Meets expectations

3 = Exceeds expectations

Sum of % weights that received a number rating of "1" at year end

Beginning of performance cycle: Signatures indicate supervisor and employee have discussed performance metrics, NCDOT values and leadership competencies.

Supervisor's signature:		Title:		Date:	
Employee's signature:		Date:			

Performance Dashboard Appraisal - Section B

Section B. NCDOT Values

Supervisor's Instructions:

At the end of the performance cycle, check "YES" or "NO" as to whether the employee adhered to each value during the performance cycle. If "NO" is checked, a description of the non-adherence must be provided in the "Comments" column.

Values (Behavioral Expectations)	Adhered to Value?		Supervisor's Comments
	YES	NO	
<u>Safety:</u> We strive for safety throughout our transportation networks as well as in our work and our daily lives.	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Customer Service:</u> We respond to our customers, both internal and external, in an open, professional and timely manner.	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Integrity:</u> We earn and maintain trust by responsibly managing the state's assets, acting ethically, and holding ourselves accountable for our actions.	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Diversity:</u> We draw strength from our differences and work together in a spirit of teamwork and mutual respect.	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Quality:</u> We pursue excellence in delivering our projects, programs, services and initiatives.	<input type="checkbox"/>	<input type="checkbox"/>	

Performance Dashboard and Appraisal - Worksheet

Name: _____

Position/Title: _____

NCDOT Goals: (1) Make our transportation network **safer**.
(2) Make our transportation network move people and goods **more efficiently**.
(3) Make our infrastructure **last longer**.
(4) Make our organization a place that **works well**.
(5) Make our organization a **great place** to work.

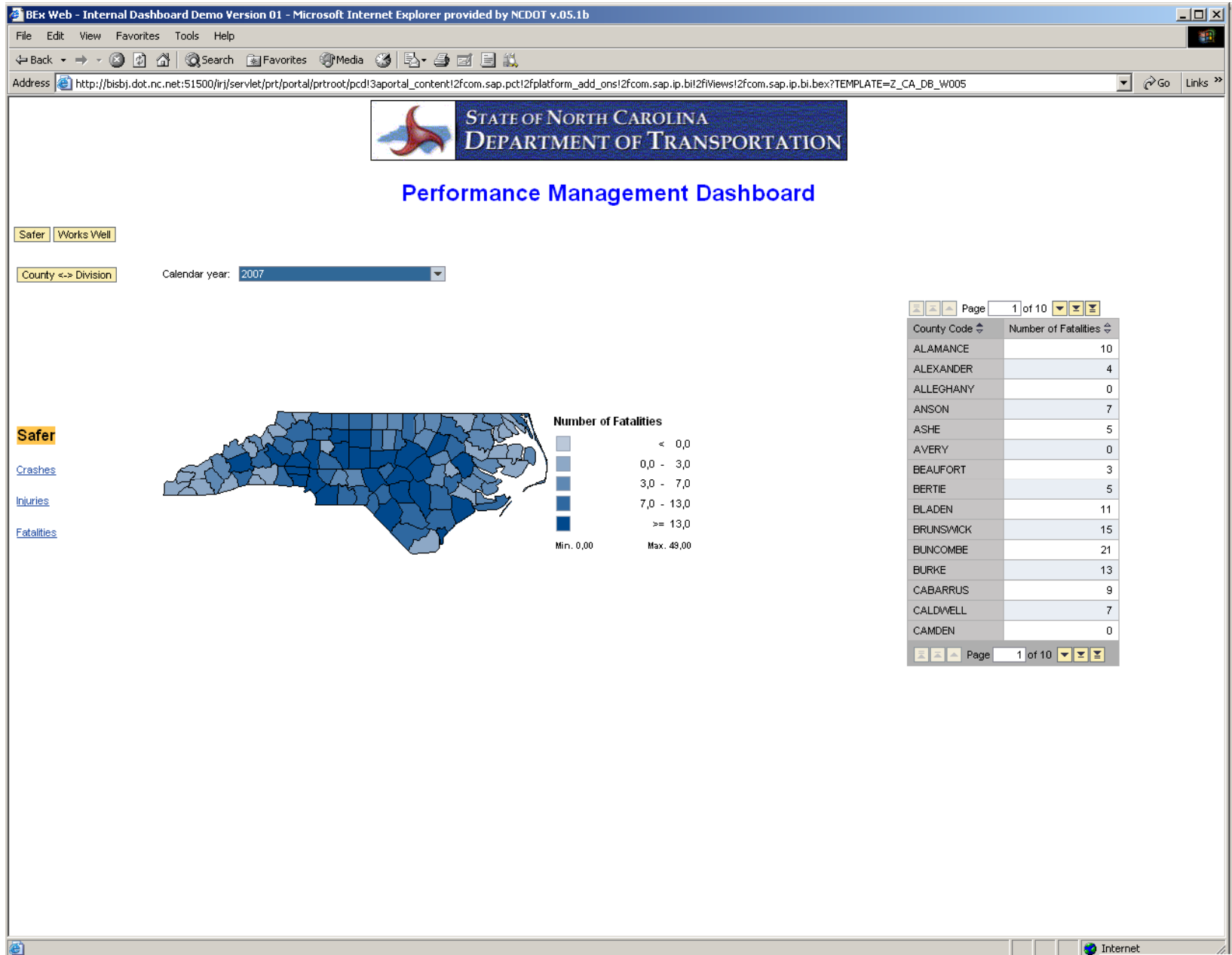
PERFORMANCE DASHBOARD AND APPRAISAL WORKSHEET

Goal	Metric	Metric Definition	Target	Data Source	Wt (%)

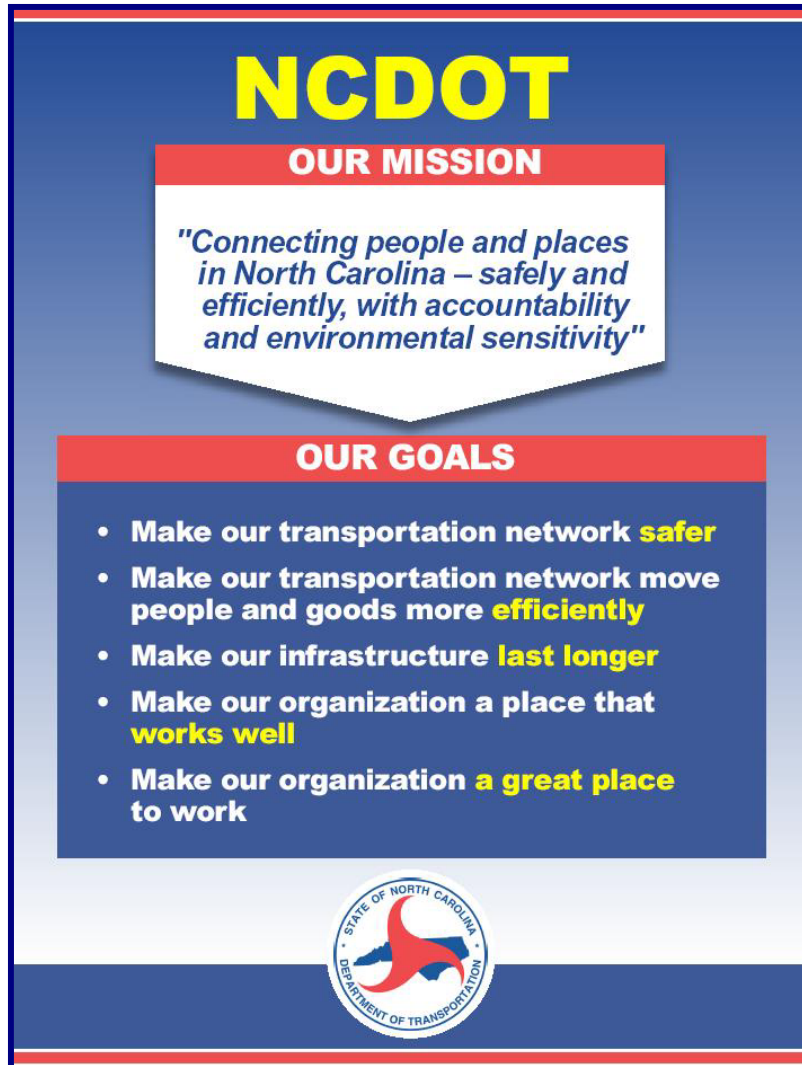
Find the worksheet on the NCDOT Intranet Portal at:

[Groups/TMT/Performance Metrics and Management/Metrics Worksheet.doc](#)

Internal Dashboard



It all comes back to....




NCDOT

OUR MISSION

"Connecting people and places in North Carolina – safely and efficiently, with accountability and environmental sensitivity"

OUR GOALS

- Make our transportation network **safer**
- Make our transportation network move people and goods more **efficiently**
- Make our infrastructure **last longer**
- Make our organization a place that **works well**
- Make our organization **a great place to work**



- Working together for a common purpose
- Planning and prioritizing our work
- Delivering our projects & programs effectively
- Measuring our performance
- Developing our employees

Fulfilling our role of
“Connecting People and
Places in North Carolina”

Directions for the Development of “Like Metrics” at NCDOT

“Like metrics” are performance metrics that may be the same across similar position classifications within the Department. Most like metrics will occur within specific divisions or branches. However, some will cross all branches and divisions within the Department such as those classifications that are in the administrative support function (i.e. office assistants, business officers, staff engineers, etc.). Because of the broad range of these types of support positions, these classifications will be facilitated independently from this exercise by the TMT.

Senior managers within the Department were charged to create focus groups within their supervision to develop like metrics so that when cascaded down throughout the Department, the metrics are comparable and similar positions can be evaluated with continuity. Once the initial draft of like metrics is drafted, they should be returned to the Performance Metrics Team (as noted below) to review and develop a department-wide “catalogue of metrics.” This catalogue will be used to establish continuity throughout the Department and will act as a reference for others when developing measures.

Step 1: Develop focus groups within divisions of the department to develop metrics. The focus group names should be sent to the Metrics Team as soon as appointed. The focus group should also have a coordinator or chairperson to lead their efforts.

Step 2: If desired, contact the metrics team for assistance with facilitation of the focus group, training or coaching on metrics.

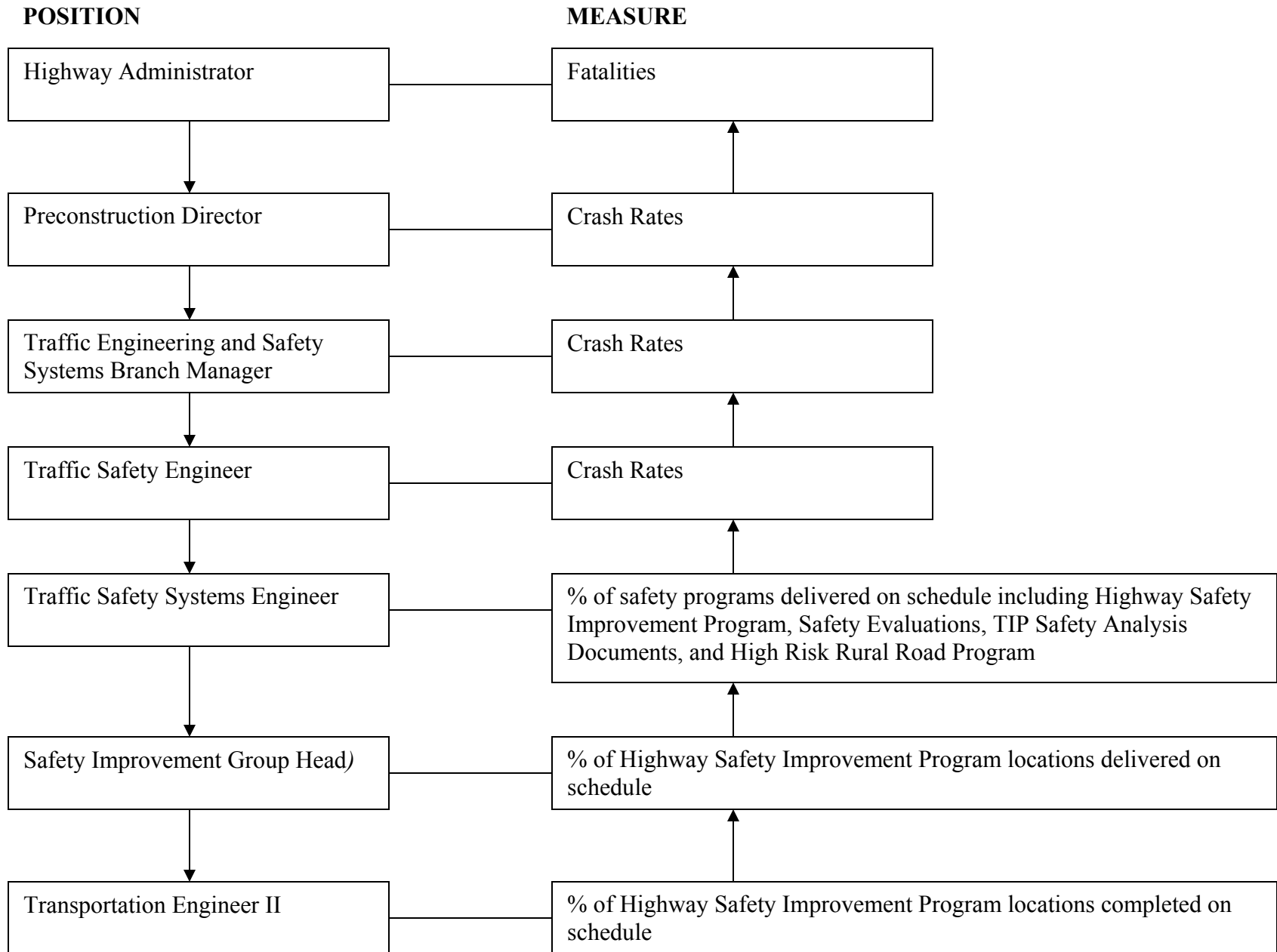
Step 3: Provide a list of metrics that each focus group has drafted for their similar classifications (via the “metrics worksheet” available on the portal) to the Performance Metrics Team (noted below) by August 15, 2008. This will be the final product from each focus group. Once collected, the Performance Metrics Team may follow up for clarification or with additional direction.

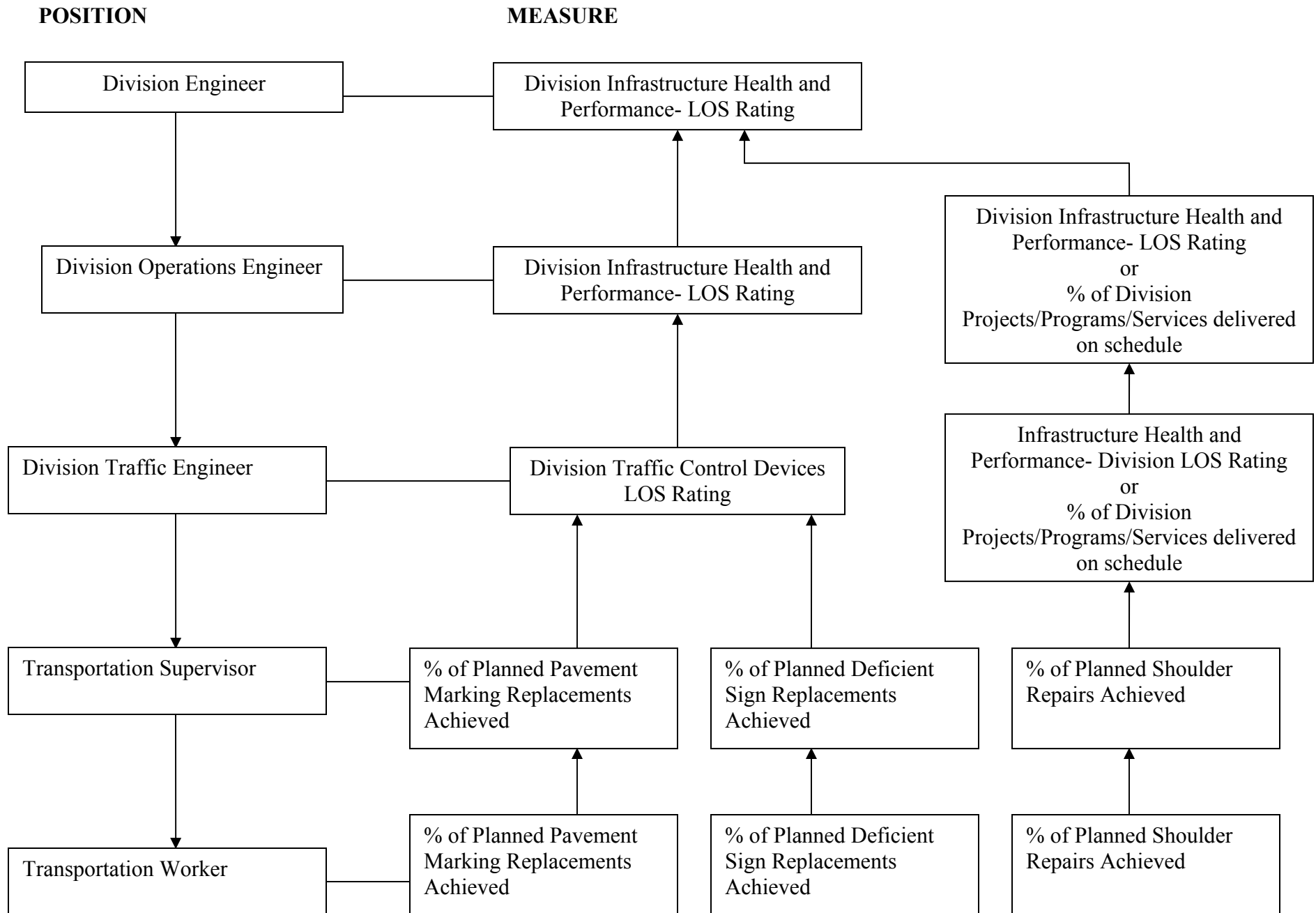
Tips and Reminders:

- Keep it simple. This is not intended to be a detailed assignment. Not all classifications will have like metrics. Use the “Guidelines for Metrics” as a discussion starter.
- A metric includes a performance measure (the metric definition), a target (expressed in a range), a weight (expressed as a percent), the data source, and the goal that the metric is aligned to.
- It’s recommended that positions should have no fewer than 3 metrics and no more than 10 metrics.
- Focus groups should consist of individuals (whether direct or indirect) that have detailed knowledge or experience with what the position classification does on a daily basis.
- For positions that may not have like metrics, it may be beneficial to begin to review and draft example metrics so that the individual is prepared for the new PDA. This is recommended and not required.

Performance Metrics Team members include:

Victor Barbour, Team Lead	vbarbour@ncdot.gov
Ken Pace	kpace@ncdot.gov
Ron Allen	rallen@ncdot.gov
Ehren Meister	emeister@ncdot.gov





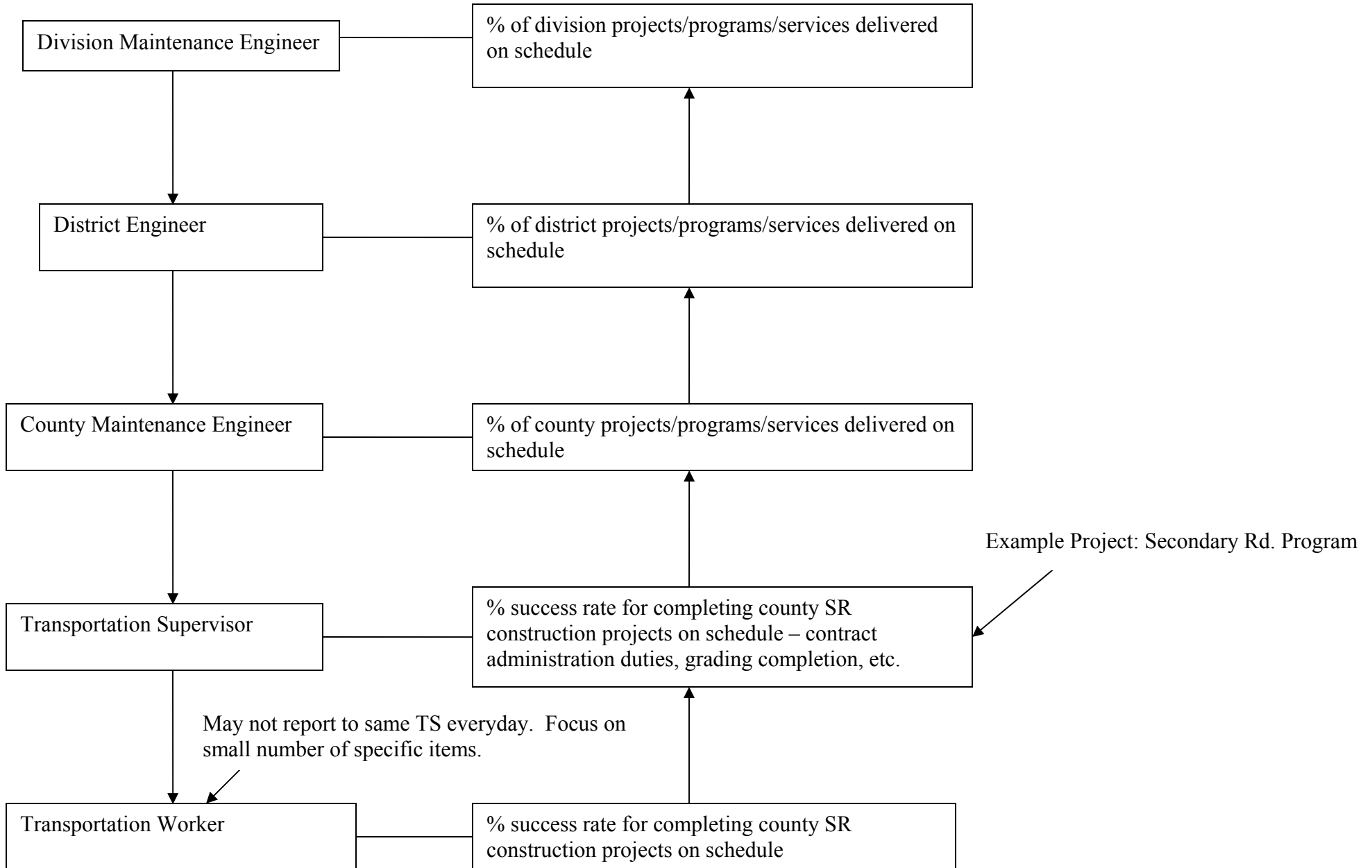
Transportation Workers have many responsibilities but only measure “Big Ticket” items (items in which the majority of time is spent). Also should include equipment operation, manual labor, dependability, interaction (teamwork)

Works Well Goal

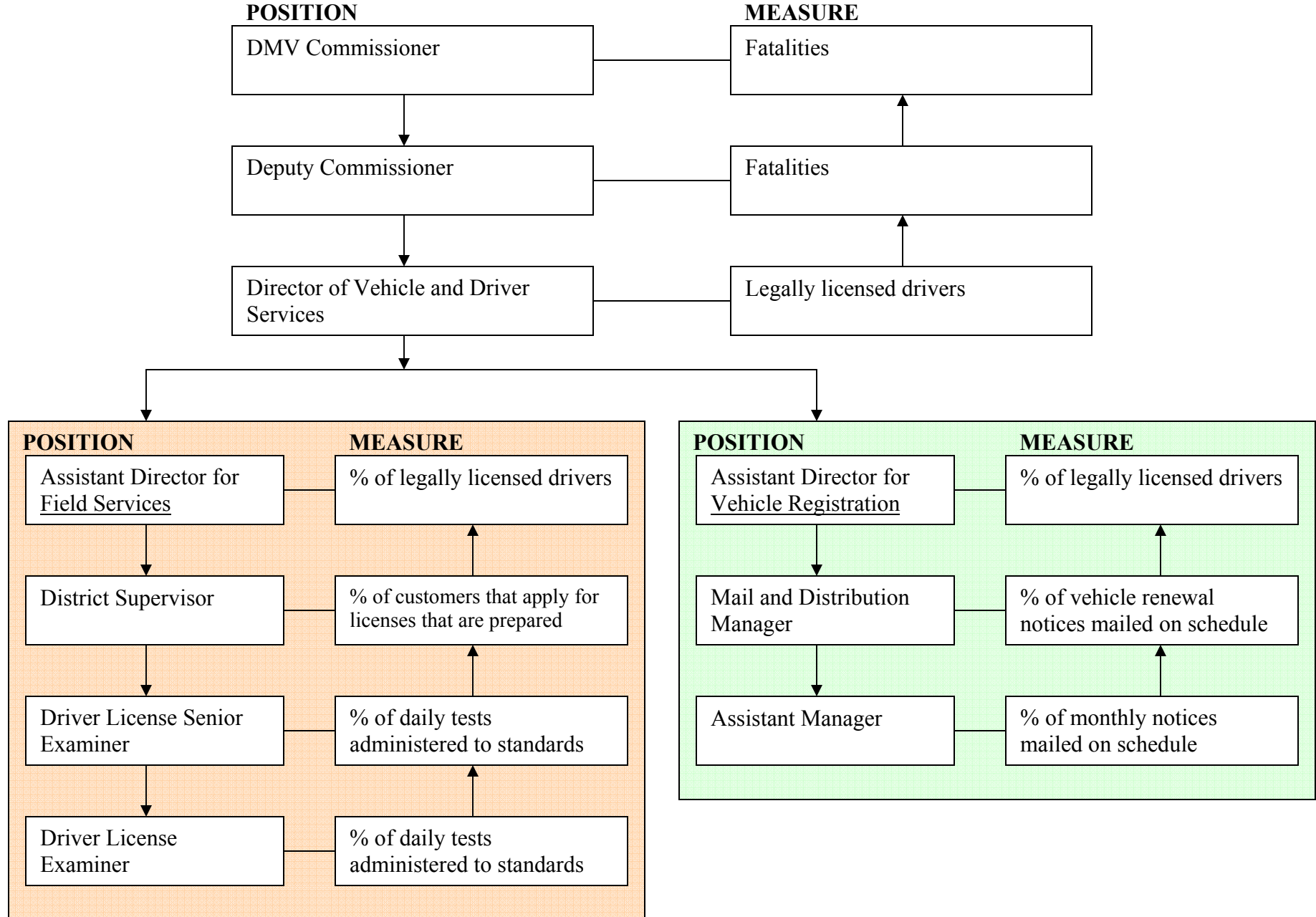
3

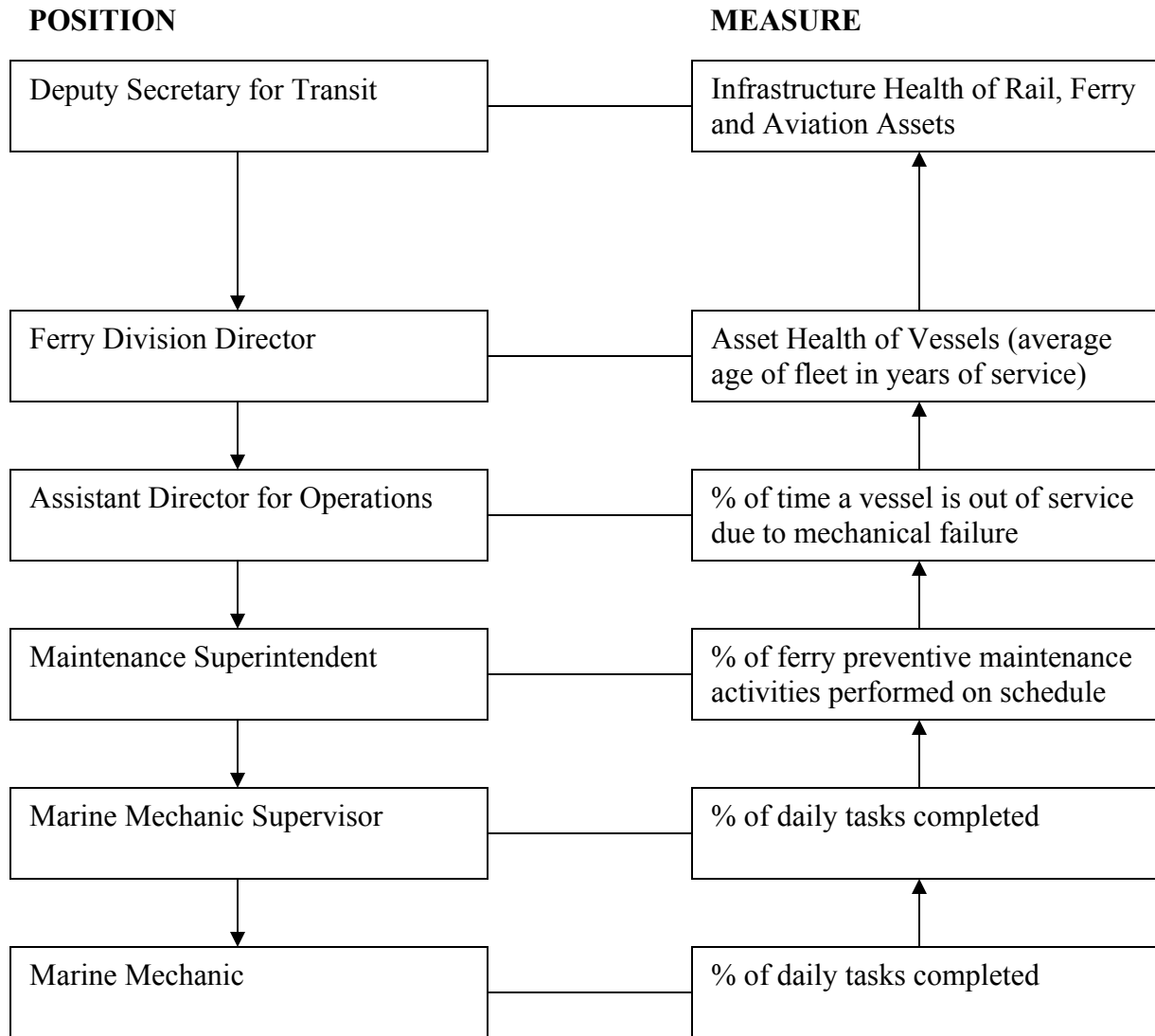
POSITION

MEASURE



Transportation Workers have many responsibilities but only measure “Big Ticket” items (items in which the majority of time is spent). Also should include equipment operation, manual labor, dependability, interaction (teamwork)





TEAM CHARTER: PERFORMANCE METRICS AND MANAGEMENT

DRAFT

Objective of project

- To introduce a performance management system, based on a set of metrics linked to strategic goals, that will allow NCDOT to monitor, report, and improve performance over time and meet its commitments to its stakeholders

Key activities

- Work with the broad organization to understand “what drives value” for organization
- Develop set of high-level business metrics linked to NCDOT strategic goals that serve as the foundation of a “performance dashboard”
- Develop set of business unit (BU) metrics that link to strategic objectives and that BU heads can, in turn, use as guidelines for developing metrics for specific groups within their organization. BUs addressed include:
 - DOH Operations (Construction; Field Ops; Asset Mgmt)
 - DOH Preconstruction (Planning; PDEA; Design)
 - DMV
 - Transit
- Create process to report, review, and manage performance against the metrics
- Devise roll-out plan to guide the introduction of the new performance management system
- Provide guidelines on how to iteratively adjust performance metrics as NCDOT strategic goals change over time

Interdependencies with other teams

- Strategic Blueprinting → For NCDOT vision and goals
- Talent Management → For links between unit performance metrics and individual employee performance evaluations

Key milestones

Deadline

- Develop set of performance metrics
 - Compile list of metrics from peer orgs • 6/15
 - Compile list of metrics currently tracked by NCDOT • 6/28
 - Determine what drives value for NCDOT • 7/3
 - Develop high-level metrics based on vision and goals • 7/6
 - Gather input on metrics from BU’s • 7/6
- Design process for managing to metrics • 7/9
- Formulate roll-out plan • 7/13
- Determine information systems adjustments necessary to support process • 7/27
- Transition to NCDOT team for launch • 7/27
- Periodic TMT reviews of launch progress • Ongoing
- Conduct process effectiveness evaluation • 9/14
- Make process enhancement recommendations • 9/28

Critical resources

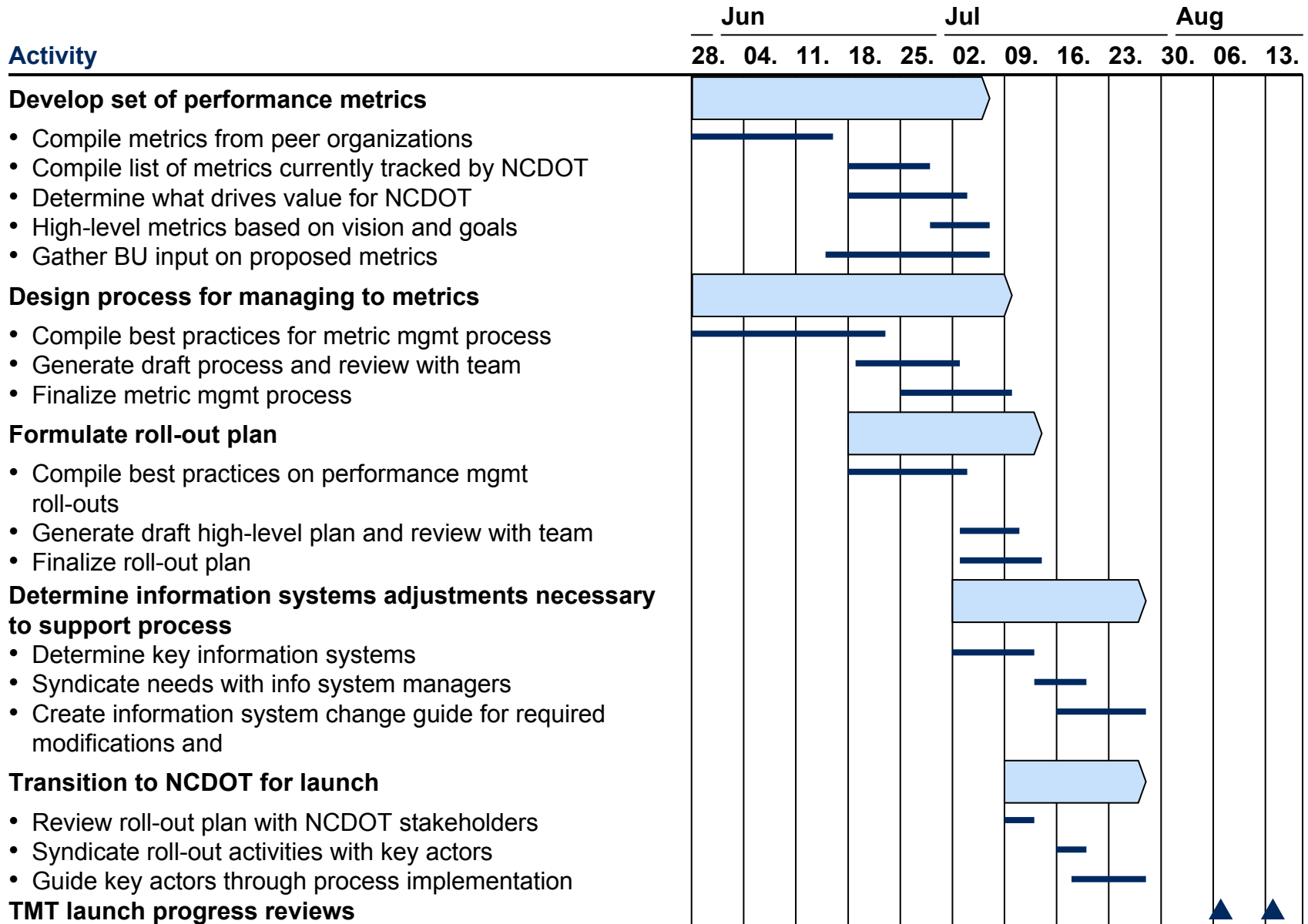
- Completed roster for this workstream’s team
- Completed vision and goals (team should be able to proceed with a “best guess” at vision and goals)
- Information from staff within NCDOT
- IT systems to track performance metrics (finding out what NCDOT currently has and determining what else is needed)

Open issues

Level of urgency

- Timing of communication regarding TMT and need for information from staff • High
- Is DMV going to be included in this effort? • Medium

REVIEW OF ACTIVITIES AND KEY DATES



Performance Metrics and Management Team Transformation Management Team

Historically, the usage and applicability of performance metrics is varied across the divisions, branches, and units within the Department of Transportation. The performance metrics that exists today has not been systematically tested for linkage to a single Department-wide vision statement and set of goals. In addition, the NCDOT does not currently have a public facing Executive Dashboard reporting system that displays certain high-level key metrics tied to a vision statement and goals.

The goals and vision of the Performance Metrics and Management Team are:

- (1) Develop core value drivers based on the latest approved NCDOT mission statement and goals,
- (2) Determine high-level metrics that will be used for a NCDOT Executive Dashboard,
- (3) Examine the current usage of performance metrics throughout the Department,
- (4) Develop a methodology for reporting on and managing to metrics that fosters and reinforces an understanding across the Department of our common mission and goals,
- (5) Institute a process for creating division and branch/unit level performance dashboards that “roll up” to create the high-level or public facing Executive Dashboard.

A structured performance metrics and management system within the Department of Transportation will:

- Empower employees to manage toward clear targets and focus on the outcomes of their work rather than only the inputs and outputs,
- Show employees how their efforts fit in to the Department’s vision and goals and foster a better understanding and conviction of the NCDOT mission,
- Enhance talent and skills among our employees by linking individual employee performance evaluations (PMs) with the unit performance metrics and,
- Better organize and structure our business processes by establishing a formal procedure of status updates beginning at the unit level continuing on up to the Secretary and his staff with the purpose of reporting, reviewing, interpreting, and managing performance against the metrics.

Important definitions to know about performance metrics:

- Executive Dashboard – A high level public facing performance dashboard that is a visual representation of the overall health of the organization. NCDOT’s Executive Dashboard is the primary reporting tool for organizational performance.
- Lagging Indicator – An outcome based measure that is directly related to an end product or goal. Lagging indicators are used to access and reevaluate whether the leading indicator measures were successful in achieving their desired result or target.
- Leading Indicator – An input based measure that has an indirect relationship to an end product or goal. Leading indicators may influence lagging indicators, and lagging indicators may effect the leading indicators that are developed and measured.
- Performance Metric – A standard of measurement that is a measurable category of performance (such as crash rates, employee satisfaction, customer service or project delivery).
- Target – A desired level of achievement for a given performance metric.

“You can’t manage something you can’t measure.”

VOLUME VI

Performance Metrics & Management

- A. Summary
- B. Key Objectives
- C. Value Trees
- D. Performance Metrics
- E. Organizational Performance Dashboard
- F. Performance Metrics Relationship Chart
- G. Performance Metrics & Management Final Documents

A. Summary

The McKinsey diagnostic revealed that Department's performance management system was inadequate and was not suited for monitoring and reporting results and improving Departmental performance over time. Although there had been some implementation of performance management measures within business units, those efforts were not explicitly linked to NCDOT or other business unit priorities. NCDOT's ad hoc nature of generating performance indicators sometimes led to conflicting needs between units. Therefore, the Performance Metrics and Management Team was created as part of the Transformation effort to develop and introduce a department wide performance management system based on a set of metrics linked to strategic goals. The new PM system will allow NCDOT to monitor, report, and improve performance over time and meet its stakeholder commitments.

B. Key Objectives

The Performance Metrics and Management Team were tasked with:

- 1) Working with various Department business unit managers and staff to understand "what drives value" for the organization and individual business units.
- 2) Developing a set of high-level business metrics linked to NCDOT strategic goals that serve as the foundation of a "performance dashboard" for the Department.
- 3) Assisting Department managers with the development of business unit (BU) metrics that link to strategic objectives and that can, in turn, be used as guidelines for developing metrics for groups and individuals within units.
- 4) Devising a roll-out plan to guide the introduction of the new performance management system and develop a methodology for reporting on and managing to metrics.
- 5) Providing guidelines on how to iteratively adjust performance metrics as NCDOT strategic goals change over time.

C. Value Trees

One of the initial efforts of the Transformation Team was to develop departmental mission and goals that provides clarification of the Department's vision for the future. When properly cascaded throughout the organization, the mission and goals provide the Department with a strong strategic direction. Linking top managers' individual performance assessments to these same goals and developing a system of "metrics" or performance measurements for the top-level managers in the department, will allow

managers to measure each business unit's contributions to meeting the mission and goals.

In order to understand what drives value for the department, the Performance Metrics team developed a "High Level Value Tree" linked to the Department's mission and goals. These value drivers were prioritized and used to develop high level performance metrics which serve as key performance indicators for the overall health of the organization. The High Level Value Tree was further broken down to include the essential value drivers for each of the five goals. This value tree identifies the key indicators for success for the five goals.

D. Performance Metrics

Historically, the usage and applicability of performance metrics was varied across the divisions, branches, and units within the Department of Transportation. The performance metrics that existed had not been systematically tested for linkage to a single Department-wide mission statement and set of goals. In addition, NCDOT did not have a public facing "Executive Dashboard" reporting system that displayed certain high-level key metrics tied to a mission statement, goals and overall performance.

To meet the needs of becoming more accountable and results oriented, the Department reinvented its performance management system to become more result based and performance oriented. One of the first phases of this change was to adopt a uniform definition and understanding of "performance metrics" and to cascade key performance indicators throughout the organization based on the five goals and mission statement of the Department.

"Performance metric" is defined as a subject area of influence or control that is a measurable category of performance (such as fatalities, employee satisfaction, customer service, or project delivery). A performance metric includes three components: the performance measure or metric definition, a target, and a weight. A "performance measure" is defined as the standard metric definition or how the metric will be measured (such as number of fatalities per 100 million vehicle miles traveled, percent of customers that are satisfied with services, or percent of construction projects on schedule). The "target" is defined as the desired level of achievement for a given performance metric. The target is always expressed in a range. The "weight" is defined as the relative importance of the metric compared to the overall function of the business unit or individual duties. The weight is not necessarily correlated to the amount of time the metric should take to meet. The weight is always expressed as a percentage.

Performance metrics, aligned to each organizational goal, were initially adopted for the top leadership positions within the Department. These metrics were then cascaded through out their division, branches and business units, creating a top to bottom cascading effect of measurement systems to meet the agency goals.

As part of this process, a new employee performance evaluation system, titled the Performance Dashboard and Appraisal (PDA), was developed and implemented linking individual performance to business unit performance, and ultimately Department performance. Effective April 1, 2009, each employee will now be required to have up to

ten performance metrics identified on their individual performance management evaluation (on their PDA) that ties to meeting the organizational goals and business unit responsibilities.

To systematically develop and institute similar and equitable metrics across business units, focus groups were also established to develop metrics for similar job functions, such as administrative assistants, division engineers, transportation workers, etc. Focus groups were facilitated and metrics established for the majority of function within the Department. To assist this development process a document was created titled, guidelines for developing metrics. These guidelines outlined how to create metrics and how to begin the process. In summary, metrics can be created by thinking about four criteria:

1. Higher level metrics and goals
2. Position job descriptions and key responsibilities
3. Customer expectations
4. Processes

The development and implementation of performance metrics allows managers to measure each business unit's contributions to meeting the mission and goals, and meeting the overall mission of the department.

A structured performance metrics and management system within the Department of Transportation has:

- Empowered employees to manage toward clear targets and focus on outputs and outcomes of their work rather than inputs,
- Shown employees how their efforts fit in to the DOT's vision and goals and foster a better understanding and conviction of the NCDOT mission,
- Enhanced talent and skills among our employees by linking individual employee performance evaluations with the unit performance metrics and,
- Better organized and structured our business processes by establishing a formal procedure of status update meetings beginning at the unit level continuing on up to the Secretary and his staff with the purpose of reporting, reviewing, interpreting, and managing performance against the metric results.

E. Organizational Performance Dashboard

The N.C. Department of Transportation is committed to measuring and improving performance. To meet this commitment and to be transparent to the public, NCDOT has developed and implemented a real time, public facing, performance dashboard located at www.ncdot.gov. This model is a high level external facing performance dashboard that is a visual representation of the overall health of the organization and is the primary reporting tool for organizational performance. At the very highest level, this represents the performance measures established for the Secretary of Transportation.

The Department's Performance Dashboard serves as an indicator of how well we are meeting our mission and goals. The dashboard consists of five gauges, one for each goal, which depicts the performance level of a specific measure and can be drilled down to more specific performance data. Each key performance indicator for each goal was systemically chosen because of its wide sweeping impact to the Department and North Carolina. Most key measures graphically depicted on the dashboard are

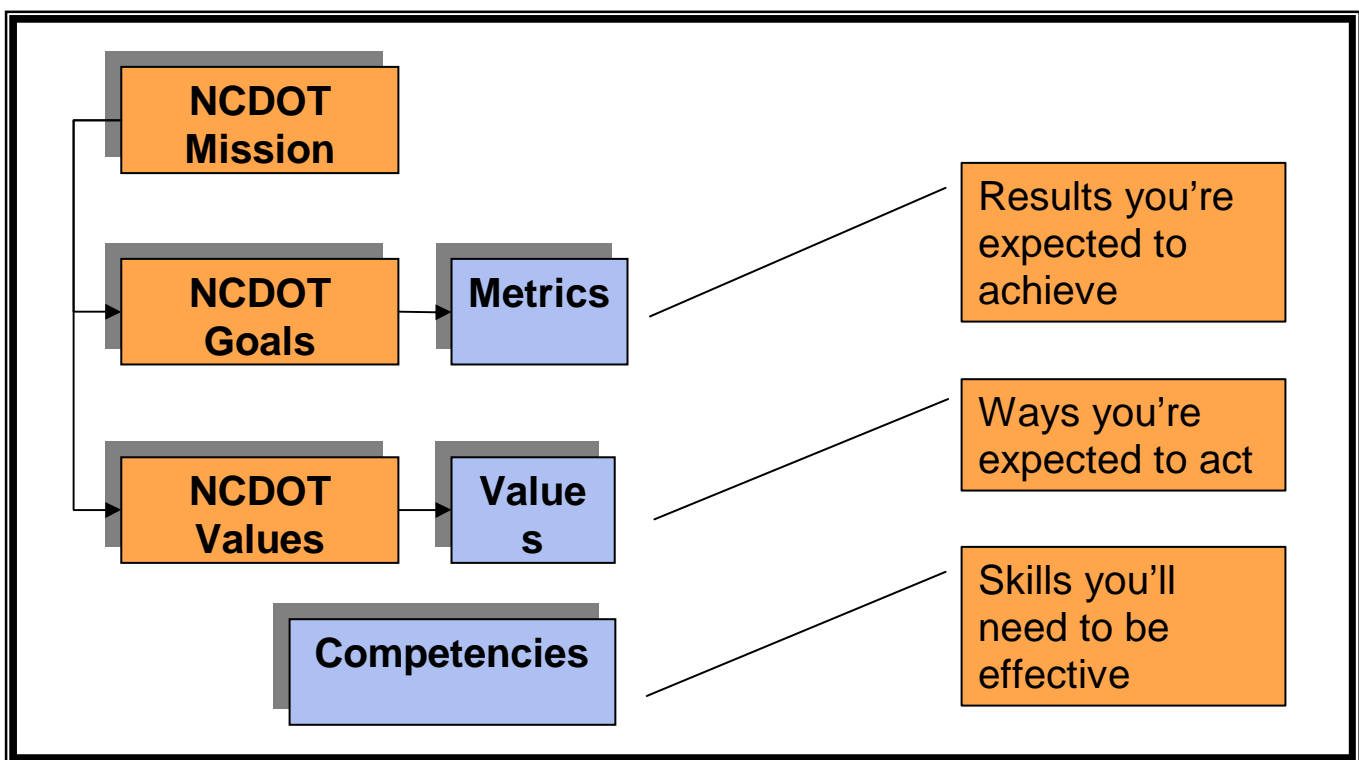
outcome measures or “lagging indicators.” Lagging indicators are an outcome based measure that is directly related to an end product or goal and are used to access and reevaluate whether leading indicator measures were successful in achieving their desired result or target. A “leading indicator” is an input based measure that has an indirect relationship to an end product or goal and can easily influence lagging indicators. Lagging indicators may also affect the leading indicators that are developed and measured.

As of November 2008, four (out of five) gauges have been implemented including:

- Fatality Rate for the goal of making the transportation network safer
- Incident clearance time for the goal of making the transportation network move people and goods more efficiently
- Infrastructure health score for the goal of making the infrastructure last longer
- Delivery rate for the goal of making the organization a place that works well

Each indicator is linked to additional organization performance data and measures based on the key indicator and goal.

F. Performance Metrics Relationship Chart



H. Performance Metrics & Management: Final Documents

Summary / Activities

- 062107_PMM_Performance Metrics and Mgmt Charter_VB
- 081607_PMM_Metrics Summary-Context and Metric Generation_VB
- 071207_PMM_Perf Mgmt Issue Tree and Metrics Outline_VB
- 072607_PMM_Perf Mgmt Intro TMT Presentation_VB

Value Tree

- 061008_PMM_High-level Value Tree_RA

Performance Metrics

- 012508_PMM_Blank Metrics Worksheet_EM
- 012508_PMM_Final Guidelines for Developing Metrics_EM
- 012508_PMM_Cascading Metrics Examples_EM
- 012508_PMM_Directions for Development of Like Metrics_EM
- 012508_PMM_Metrics Presentation for Focus Groups_RA
- 061308_PMM_General Performance Metrics 101 Presentation_VB
- 091207_PMM_Metrics Template with Goals_RA
- 040108_PMM_Metrics Worksheet Chief Engineer_KP

Performance Dashboard

- 073107_PMM_Executive Committee Perf Mgmt Best Practices & Overview_VB
- 071308_PMM_Dashboard Screen Shots Presentation_KP
- 120707_PMM_Secretary of Transportation Metrics_VB
- 103108_PMM_Dashboard Documentation_EM

Outreach

- 112007_PMM_Detailed Performance Metrics Pilot Presentation_VB
- 071207_PMM_Communications Outreach Pyramid and Timeline_VB
- 060908_PMM_DOH Operations Metrics Presentation_VB
- 071307_PMM_PM&M Team Outreach Memo_RA
- 080807_PMM_Performance Metrics Memo to Managers_RA

SECRETARY OF TRANSPORTATION

	Metrics	Definition of Measure/Comments
“Make our transportation network safer”	<ul style="list-style-type: none">• Fatalities	<ul style="list-style-type: none">• % improvement in fatalities compared to national goal of 1.0 fatality per 100 million vehicle miles traveled
“Make our transportation network move people and goods more efficiently”	<ul style="list-style-type: none">• Reliability on the System Strategic Highway Corridors and Regional Tier Routes• Transit Service	<ul style="list-style-type: none">• Average operating speeds on Strategic Highway Corridors (SHC)• Travel time reliability - standard deviation of average commuter time in selected urban areas• % Decrease in congestion• % Increase in Frequency of Service
“Make our infrastructure last longer”	<ul style="list-style-type: none">• Department Infrastructure Health	<ul style="list-style-type: none">• Statewide Level of Service Scores for Facilities (assets)• % Increase in value of Department infrastructure
“Make our organization a place that works well”	<ul style="list-style-type: none">• Projects/Programs/Services on Schedule and on Budget• Business Development and Outreach• Customer Service• Fiscal Management	<ul style="list-style-type: none">• % of projects/programs/service administered, managed and constructed on schedule and on budget (Planned vs. Actual)• % of solicitations sent to, % of bids received from, & % of contract dollars awarded to DBEs, MBEs, WBEs, SBEs, and HUBs• Customer survey scores (public, partners, etc.)• % improvement of existing administrative budget
“Make our organization a great place to work”	<ul style="list-style-type: none">• Employee Safety• Employee Satisfaction• Recruiting, Developing and Retaining Employees	<ul style="list-style-type: none">• Number of incidents, lost work days, worker’s comp claims• Employee satisfaction survey composite score• Retention rate of “Top Performers” and/or stabilization rate

GUIDE FOR DASHBOARD SCORECARD

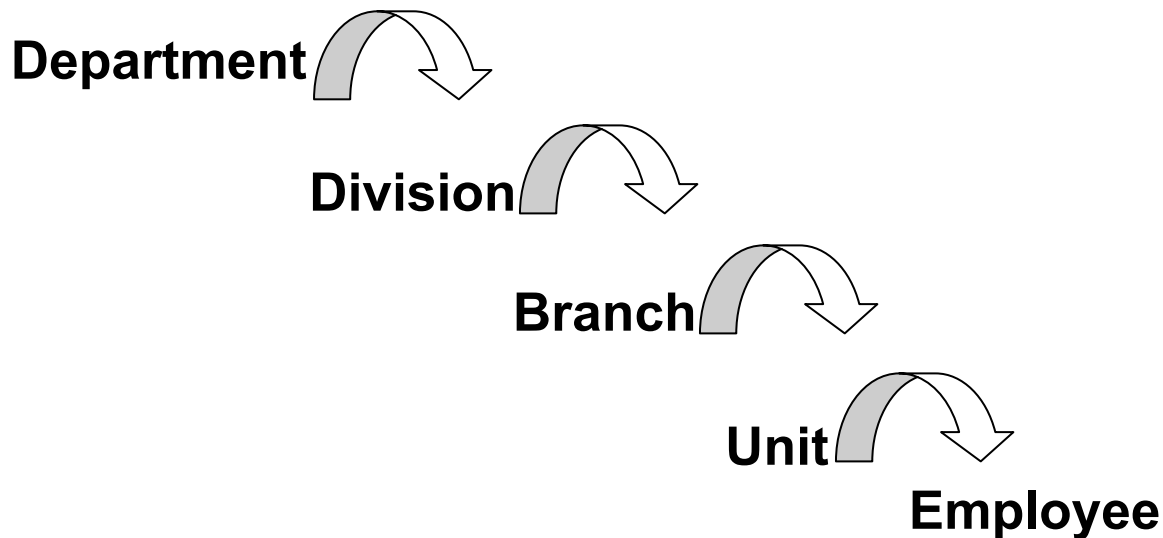
FOR USE IN PERFORMANCE REVIEW MEETINGS

Metric	Metric Data	Target	Data Source	Wt (%)
Fatalities	<i>Fatalities per 100 million vehicle miles; i.e. 1.58...this will be compared against a baseline TBD (% improvement)</i>		<i>Traffic Engineering Branch</i>	
Reliability of Strategic Highway Corridor System	<i>-Average operating speeds on Strategic Highway Corridors (SHC) -Travel time reliability -Congestion (Level of Service)</i>		<i>Transportation Planning Branch</i>	
Transit Service	<i>% Increase in Frequency of Service compared to previous year for Rail, Ferry, Public Transit, etc.</i>		<i>Transit</i>	
Department Infrastructure Health	<i>- Composite Statewide Rating (Level of Service Rating) - % annual increase in value of Department infrastructure</i>		<i>- Asset Management-Maintenance Condition Reports - Financial Management Division</i>	
Projects/Programs/Services on Schedule and on Budget	<i># of projects/programs/services planned for year divided by # actual completed = % success rate</i>		<i>Program Development report from STaRS and/or BW, HiCAMS</i>	
Business Development and Outreach	<i>% Contract dollars awarded to DBEs, MBEs, WBEs, SBEs, & HUBs</i>		<i>SAP</i>	
Customer Service	<i>Customer survey scores (public, partners, etc.)</i>		<i>TBD</i>	
Fiscal Management	<i>% improvement of administrative budget(s)</i>		<i>TBD</i>	
Employee Safety	<i># of reported incidents that cause lost work days and/or worker's comp claims compared to baseline, i.e previous year(s) reported incidents</i>		<i>Safety and Loss Control</i>	
Employee Satisfaction	<i>TBD</i>		<i>Employee Survey</i>	
Recruiting, developing and retaining employees	<i>Retention rate of "Top Performers" and/or stabilization rate</i>		<i>TBD</i>	

PERFORMANCE METRICS & MANAGEMENT

PERFORMANCE METRICS

- **Definition - “To Measure” (either a process or a result)**
- **Metrics are used to establish organizational goals**
- **Metrics gauge performance throughout the organization,**



FACTS ABOUT METRICS

For improved organizational performance, Executives and Managers must all be able to interpret metrics appropriately.

To do so, they must.....

- (1) understand precisely what is being measured,
- (2) gauge whether the results are positive or negative based on the organization's goals,
- (3) place the appropriate weight or relevance on the metrics for issues being addressed by the organization.

***APPROPRIATELY INTERPRETING A MEASURE AND THE MEANING OF RESULTS
PROVIDES THE NECESSARY FOUNDATION FOR ACTING ON THOSE RESULTS AND
EFFECTING IMPROVEMENT.***

FACTS ABOUT METRICS

"You can't manage something you can't measure."

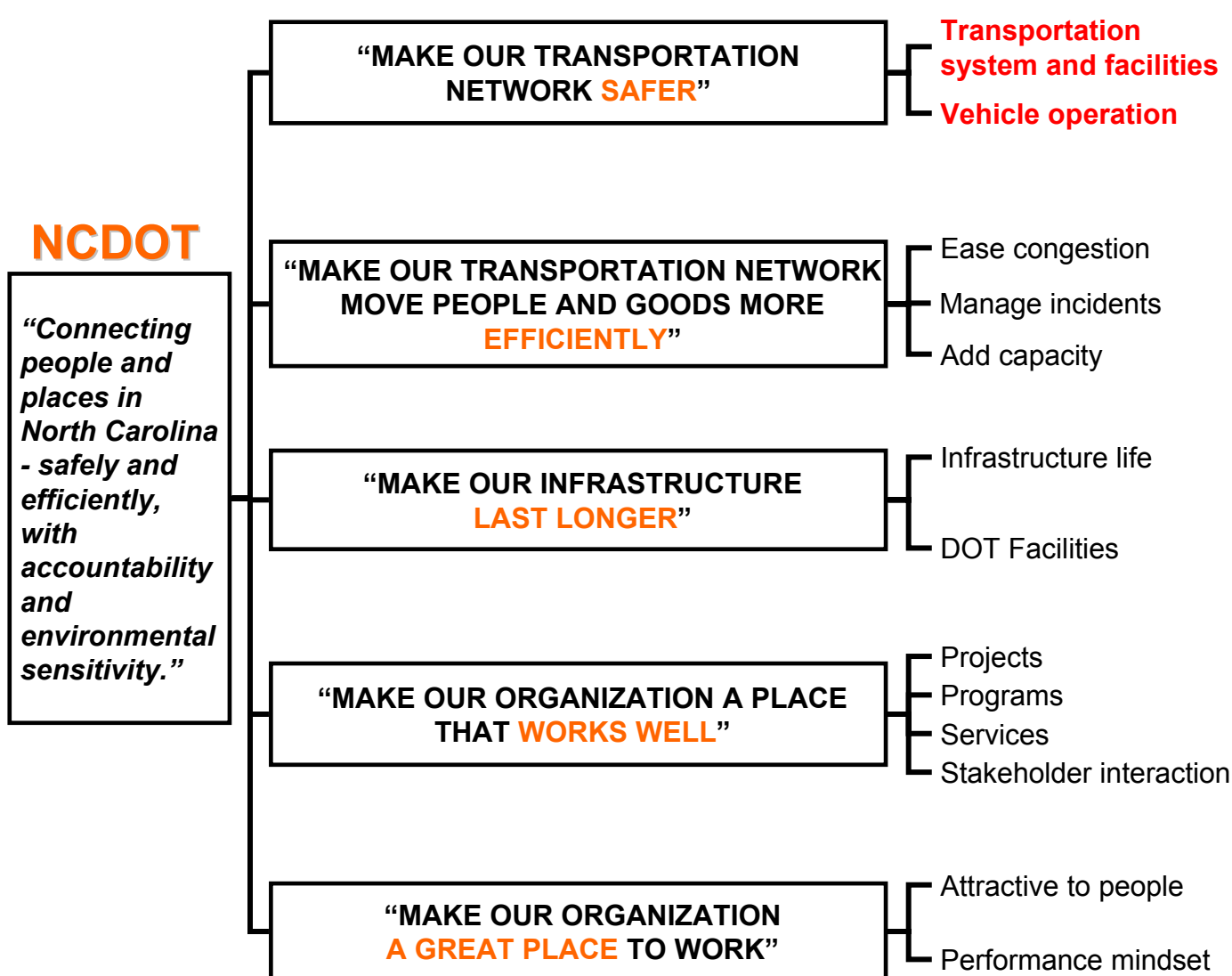


"Chicken Efficiency"huh ? What is that?

"Poor selection of metrics can produce bad management decisions"

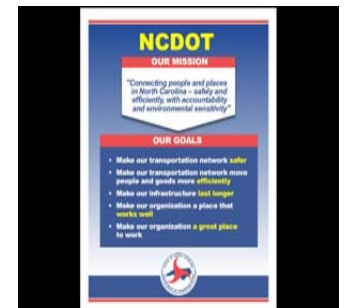
"If an agency has too many measures, it has—in reality—no measures."

NCDOT HIGH-LEVEL VALUE TREE



NEXT SLIDE

Metrics should link to the Department’s Mission & Goals.



MAKE OUR TRANSPORTATION NETWORK SAFER



Key metrics

- Incidents
 - Fatalities
 - Injuries
 - Severity

Transportation system and facilities

Facilities

- Maintenance
- Building design
- Security
- Condition

Tiers/system

- Design
- Features
- Condition
- Maintenance

NCDOT work zones

- Design
- Traffic control devices
- Safe work practices
and standard operating
procedures

External work
zones

- Design
- Traffic control devices
- Safe work practices
and standard operating
procedures

Vehicle operation

Vehicle condition

- Inspection
- Enforcement

Operator practice

- Training
- Enforcement

SECRETARY OF TRANSPORTATION

	Metrics	Definition of Measure/Comments
“Make our transportation network safer”	<ul style="list-style-type: none">Fatalities	<ul style="list-style-type: none">% improvement in fatalities compared to national goal of 1.0 fatality per 100 million vehicle miles traveled
“Make our transportation network move people and goods more efficiently”	<ul style="list-style-type: none">Reliability on the System Strategic Highway Corridors and Regional Tier RoutesTransit Service	<ul style="list-style-type: none">Average operating speeds on Strategic Highway Corridors (SHC)Travel time reliability - standard deviation of average commuter time in selected urban areas% Decrease in congestion% Increase in Frequency of Service
“Make our infrastructure last longer”	<ul style="list-style-type: none">Department Infrastructure Health	<ul style="list-style-type: none">Statewide Level of Service Scores for Facilities (assets)% Increase in value of Department infrastructure
“Make our organization a place that works well”	<ul style="list-style-type: none">Project/Program Delivery on Schedule and BudgetBusiness Development & OutreachCustomer ServiceFiscal Management	<ul style="list-style-type: none">% of projects and programs administered, managed and constructed on schedule and on budget (Planned vs. Actual)% of solicitations sent to, % of bids received from, & % of contract dollars awarded to DBEs, MBEs, WBEs, SBEs, and HUBsCustomer survey scores (public, partners, etc.)% improvement of administrative and projects budget
“Make our organization a great place to work”	<ul style="list-style-type: none">Employee SafetyEmployee SatisfactionRecruiting, developing and retaining employees	<ul style="list-style-type: none">Number of incidents, lost work days, worker’s comp claimsEmployee satisfaction survey composite scoreRetention rate of “Top Performers” and/or stabilization rate

PERFORMANCE METRICS : LEADING vs. LAGGING

LEADING INDICATORS

(Input)

Leading Indicators are metrics that are task specific

Leading Indicators measure and track performance before a problem arises

Leading Indicators are proactive

Leading Indicators indicate what may happen (future)

Leading Indicators are a predictor to the ability to meet future goals

LAGGING INDICATORS

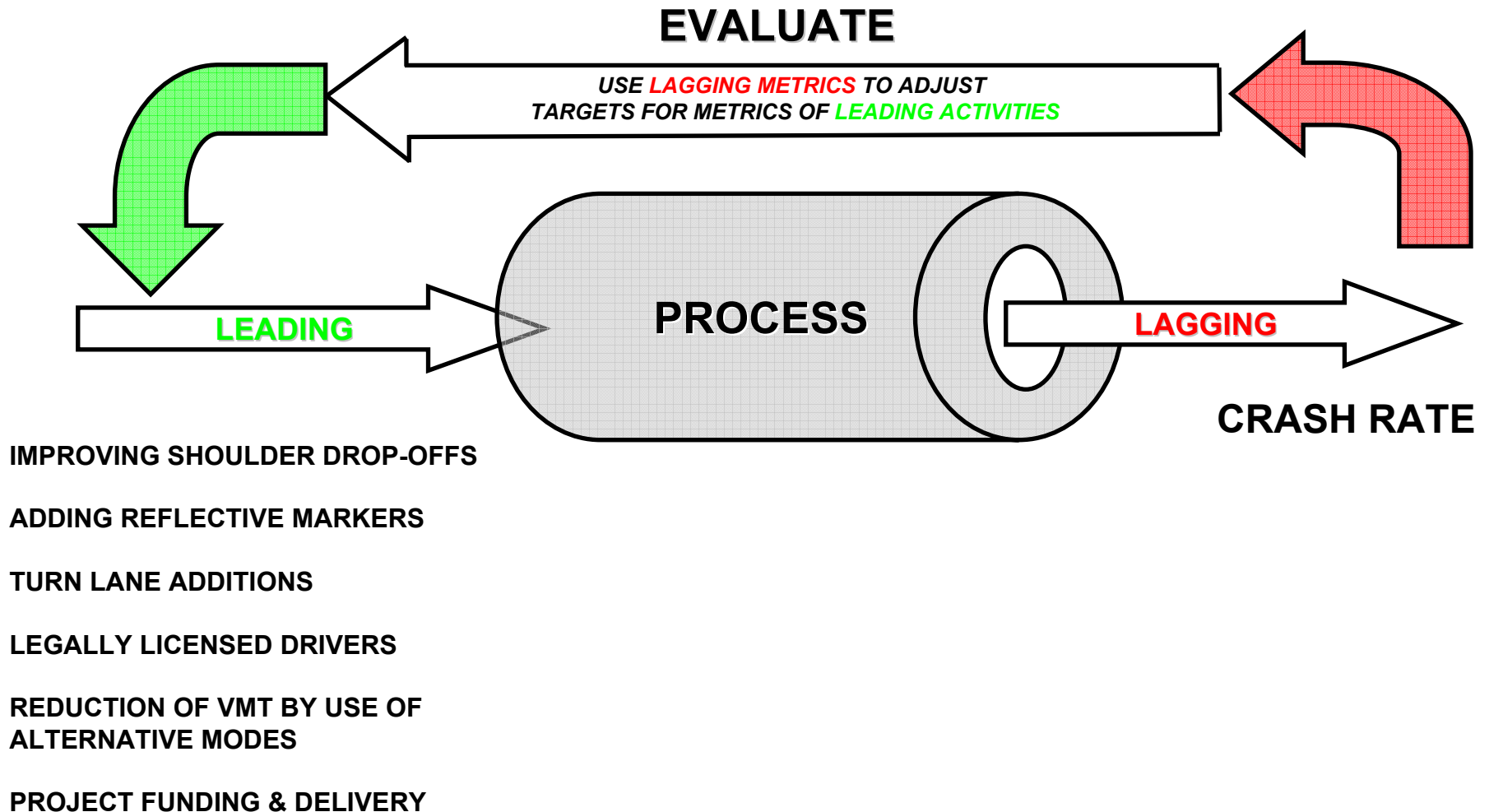
(Outcomes)

Lagging Indicators are reactive

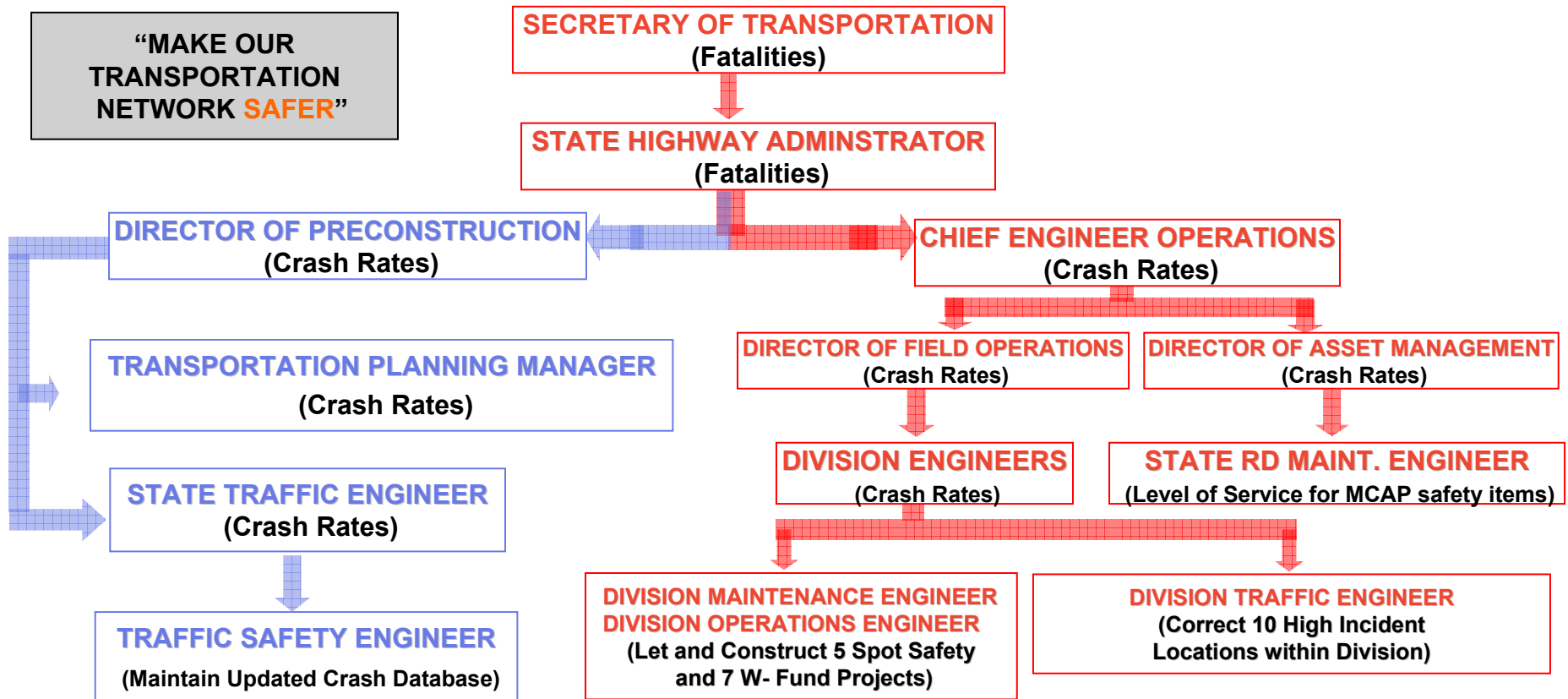
Lagging Indicators are reflective and measure performance against prior goals

Lagging Indicators indicate what has already happened (past)

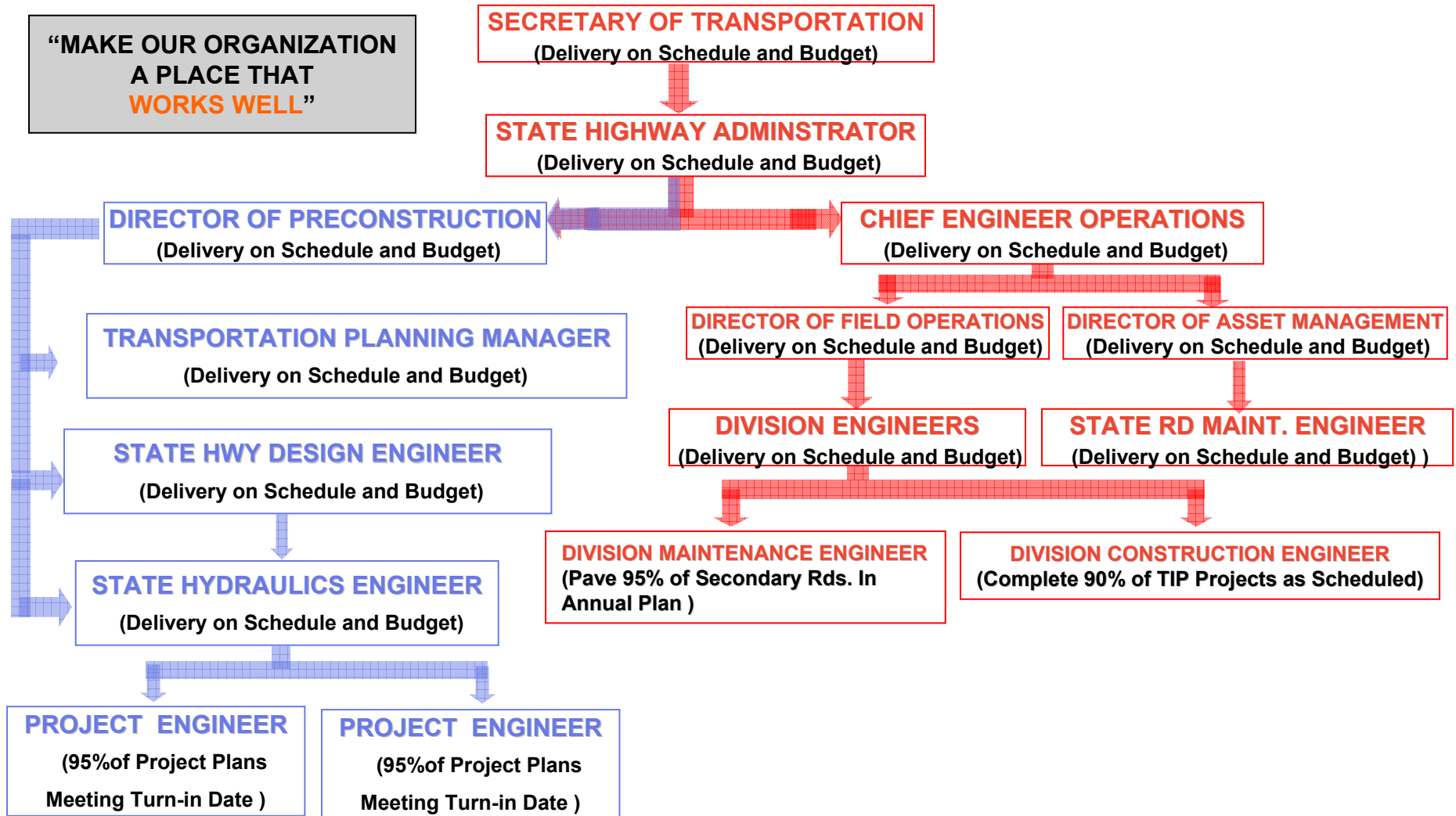
LEADING vs. LAGGING



EXAMPLE OF CASCADING METRICS FOR SAFER



EXAMPLE OF CASCADING METRICS FOR **WORKS WELL**



METRIC TARGET EXAMPLES

Metric	Actual Results		Targets					
	2005	2006	2007		2008		2009	
			Low	High	Low	High	Low	High
• Fatal accident rates on NCDOT transportation network (<i>Fatals /100M VMT</i>)	1.62	1.61	1.0	1.50	1.0	1.40	1.0	1.30
• Congestion (level of service)	C-	C-	TBD	TBD	TBD	TBD	TBD	TBD
• Statewide Infrastructure Health (<i>MCAP LOS Rating</i>)	C-	C-	C	B	C	B	C	B
– Pavement Condition	C-	C-	C	B	C	B	C	B
– Bridge Condition	-	D	-	-	C	B	C	B
• Delivery on schedule and Budget								
– TIP Project Delivery	75%	78%	75%	80%	75%	80%	75%	80%
– Div. Program/Projects	75%	78%	75%	80%	75%	80%	75%	80%
– Misc. Program Delivery	75%	78%	75%	80%	75%	80%	75%	80%
• Employee safety incidents (<i>Based on Division or Unit Incidents</i>)	5	7	0	4	0	3	0	2

WHAT DO YOU DO NEXT ?.....

NEXT STEPS

- Understand and validate your metrics
- Identify metrics of your subordinates that feed into your metrics
- Understand and validate the targets for your metrics
- Identify the targets for your subordinates metrics

Now.... A Class Exercise

Works Well Exercise

SECRETARY OF TRANSPORTATION

	Metrics	Definition of Measure/Comments
“Make our organization a place that works well”	<ul style="list-style-type: none">• Delivery on Schedule and Budget• Business Development & Outreach• Customer Service• Fiscal Management	<ul style="list-style-type: none">• % of projects managed, administered, constructed on schedule and on budget (Planned vs. Actual)• % of solicitations sent to, % of bids received from, & % of contract dollars awarded to DBEs, MBEs, WBEs, SBEs, & HUBs• Customer survey scores (public, partners, etc.)• % improvement of existing overhead and program budget

Example of Projects and Programs for the Secretary of Transportation

Delivery of Statewide TIP Program (All Phases - Planning, Design, R/W, Let, Construction)

Delivery of GARVEE Bond Projects

% Obligation of Funding

% of Governor’s Highway Safety Program Completed vs. Planned

% of Planned Transit Programs and Projects Completed vs. Planned

Other Programs

Secretary’s Success = Overall Cumulative Rating of All Programs/Projects Across the Department

(DMV, Division of Highways, Transit, Administration and Business Development, Financial, Intergovernmental Affairs and Business Development, Human Resources, Information Technology, Public Information Office)

Works Well Exercise

DIRECTOR OF PRECONSTRUCTION

	Metrics	Definition of Measure/Comments
<div>“Make our organization a place that works well”</div>	<ul style="list-style-type: none">• Delivery of TIP projects, excluding bridge replacement projects• Project Scope• Business Development & Outreach• Fiscal Management	<ul style="list-style-type: none">• Number of major milestones met (planned vs. actual) <i>(concurrence points, planning documents completed, public hearings held, R/W, Let, and Construction Completed)</i>• Once Cost Estimate Flow Chart and Scope Change Request processes are implemented, a metric needs to be developed to evaluate the performance• % of solicitations sent to, % of bids received from, & % of contract dollars awarded to DBEs, MBEs,WBEs,SBEs, & HUBs• % improvement of existing overhead and program budget

.....

Example of Projects and Programs for the Director of Preconstruction

Delivery of Statewide TIP Program (All Phases - Planning, Design, R/W, Let, Construction,)

Major Milestones Met For:

- Concurrence Points
- Planning Documents
- Public Hearings
- Right of Way
- Projects Let
- Construction Completed

Director’s Success = Overall Cumulative Rating of All Programs/Projects Across Preconstruction

(Highway Design, Right of Way, Traffic Engineering and Safety Systems, Project Development and Environmental Analysis, TIP Program Managers, Alternative Delivery, Project Services, Transportation Planning)

NCDOT EXECUTIVE DASHBOARD

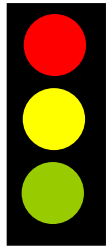


EACH DASHBOARD METRIC AND TARGET WILL BE TRACKED OVER TIME TO OBSERVE TRENDS IN PERFORMANCE...

Examples of metric tracking methods

ILLUSTRATIVE

"Stoplight" visual ratings of performance as compared to established targets



Underperformed according to target

Met target

Overperformed according to target

Strategic goal: "Make our transportation network safer"

Performance metric: xxxxxx

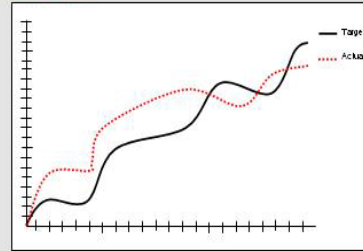
Description: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

Unit of measure: xxxxx xxxxx xxxxx

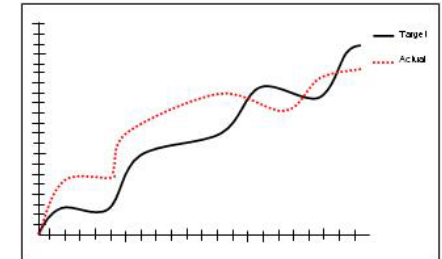
Target: Green light - xxxxx
Yellow light - xxxxx
Red light - xxxxx

Historical performance:
2006 - xxxxx
2005 - xxxxx
2004 - xxxxx

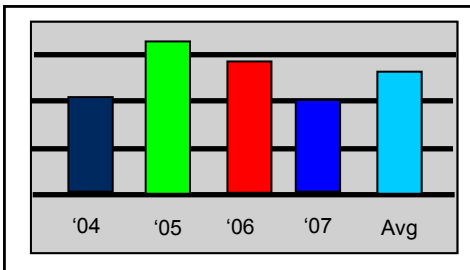
Note: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx



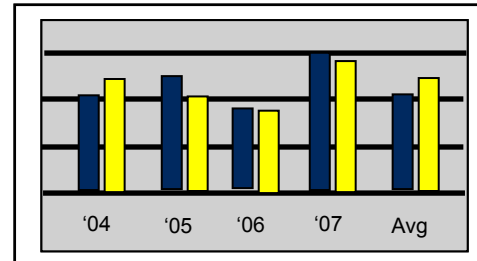
Year-over-year comparisons of actual performance versus targets



Comparisons between current year and historical performance



Comparison between North Carolina performance and US national averages



NCDOT

EXECUTIVE DASHBOARD

A GAUGE FOR OVERALL ORGANIZATIONAL PERFORMANCE

PHASE 1 - Dashboard Data for the short term

- Make our transportation network **safer**

Crash Statistics

Fatality Information (Crash Report)

- Make our transportation network move people and goods more **efficiently**

Strategic Highway Corridor

Travel Information (TIMS)

- Make our infrastructure **last longer**

Maintenance Condition Assessment Program (MCAP) - 2006 Executive Summary

MCAP - Full 2006 Report _____

- Make our organization a place that **works well**

Construction Progress Report

Statistics For Awarded Contracts

- Make our organization **a great place** to work

Current Job Postings

Employee Newsletter - "In The Loop"

PHASE 1 -
Short Term
Executive
Dashboard

NCDOT EXECUTIVE DASHBOARD

A GAUGE FOR OVERALL ORGANIZATIONAL PERFORMANCE

METRICS

PHASE 1 - SHORT TERM

“Make our transportation
network **safer**”

- Fatal accident (incident) rates on NCDOT transportation network

NC Fatal Crash Data
(Info supplied from Kevin Lacy)

“Make our transportation
network move people and
goods more **efficiently**”

- Travel time (avg. operating speed)
- Travel time reliability
- Congestion (level of service)

TIMS



“Make our infrastructure
last longer”

- Existing system conditions
– Roads, Bridges, and other
- Book value of transportation network

MCAP



“Make our organization
a place that **works well**”

- Delivery on schedule
- Delivery on budget

**Construction
Progress**

*(May be able to get some
info from Prog Development
to put here)*



“Make our organization
a great place to work”

- Employee satisfaction
- Employee safety incidents
- Recruiting, developing, and retaining employees

In The Loop



PHASE 2 -
Full Delivery
Executive
Dashboard

NCDOT

EXECUTIVE DASHBOARD

A GAUGE FOR OVERALL ORGANIZATIONAL PERFORMANCE

METRICS

“Make our transportation network **safer**”

- Fatal accident (incident) rates on NCDOT transportation network

“Make our transportation network move people and goods more **efficiently**”

- Travel time (avg. operating speed)
- Travel time reliability
- Congestion (level of service)

“Make our infrastructure **last longer**”

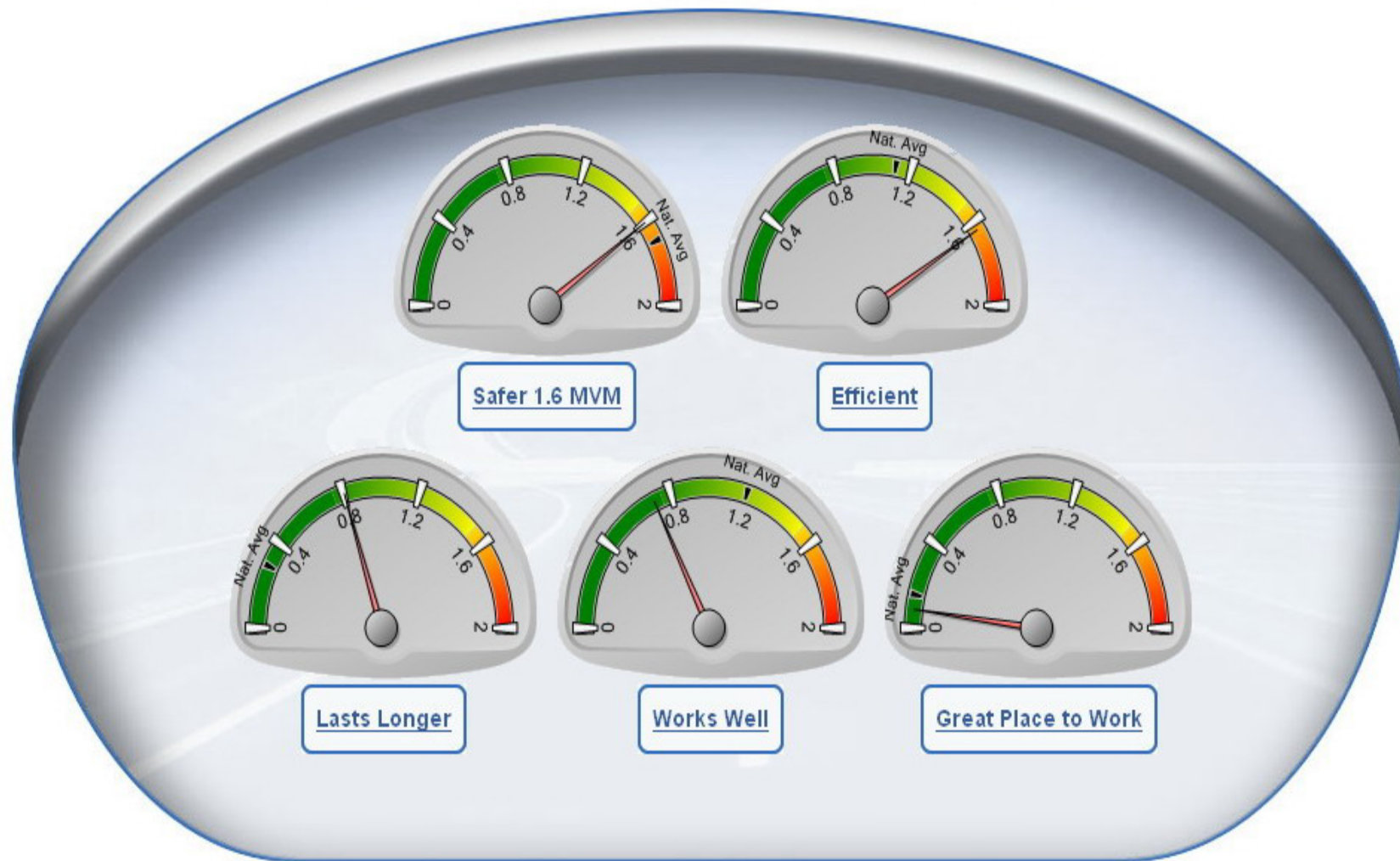
- Existing system conditions
 - Road
 - Bridge
 - Other
- Book value of transportation network

“Make our organization a place that **works well**”

- Delivery on schedule
- Delivery on budget

“Make our organization **a great place** to work”

- Employee satisfaction
- Employee safety incidents



Dashboard Documentation

Dashboard Documentation	1
Dashboard Home Page	2
Fatality Rate:	2
Delivery Rate:.....	2
Infrastructure Health:.....	2
Crash Details Page.....	3
Crash Count:	3
Fatality Count:	3
Injury Count:	3
Yearly Statistics Table.....	3
Filter By Dropdown Box	3
Delivery Rate Details Page.....	4
Letting Success Rate:	4
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Dashboard Home Page

The starting page of North Carolina DOT's Organizational Performance Dashboard displays one Key Performance Indicator (KPI) for each of the five goals. The KPI definitions are as follows:

Fatality Rate:

Fatality Rate is computed as the number of fatalities year to date divided by Vehicle Miles Traveled (VMT) in 100 millions. The acronym VMT (100MVM) is used for displaying the Vehicle Miles Traveled with a scale of 100 Million Vehicle Miles. For example there were 1555 fatalities on NC roads in 2006, and 101648 Million Vehicle Miles were traveled on NC roads in 2006, which is same as 1016.48 100MVM. The fatality rate for 2006 is: 1555 divided by 1016.48 which are equal to 1.53 fatalities per 100MVMT. The fatality rate gauge compares the current year to date NC fatality rate with the previous year's National Fatality Rate which was 1.42 for 2006.

NCDOT has established a target range for the fatality rate of 1.5 to 1.63. Values below the range are displayed as green, above the range as red and within the range as yellow. The data for this gauge is sourced from DMV Crash Database.

Delivery Rate:

Delivery Rate measures the performance of NCDOT against the "works well" goal. Delivery Rate is defined as percent of all active construction projects that are "on target." A project is on target if it is "on schedule" and "on budget." The on schedule and on budget status of a project is defined as:

- A contract is on schedule if actual progress is within 15% of scheduled progress.
- A contract is on budget if over/under run is less than 4%.
- A contract is on target if it is on budget and on schedule. The "on target metrics" is displayed as the primary and main gauge for NCDOT's goal of being an organization that works well.

The construction project status data is sourced from HiCAMs.

Infrastructure Health:

Infrastructure Health Index measures the condition of NCDOT highways system assets against the goals of making our infrastructure lasts longer. It is defined as a composite score based on pavement condition, bridge health index and roadside feature condition. Three comprehensive statewide surveys are used to evaluate the condition of the state highway system: (1) the Maintenance Condition Survey, (2) the Bridge Condition Survey, and (3) the Pavement Condition Survey. The surveys provide the following metrics:

- Pavement condition is defined as the percent of lane miles in good condition. Good condition for pavement is defined as a PCR (Pavement Condition Rating) value of 80 or higher.
- Bridge health index is defined as the percent of bridges in good condition. A bridge is considered to be in good condition if the Level of Service (LOS) for Deck, Sub-Structure and Super Structure are all greater than or equal to 6.
- The Roadside Feature Condition is defined as a weighted value score that represents the physical condition of all highway features and elements excluding pavement and bridges.

Highway health index is a weighted average of the three metrics described above. It is calculated as follows:

- Pavement Condition (40%) + Bridge Health Index (35%) + Roadside Feature Condition (25%)

Note: The infrastructure health scores do not reflect the actual safety of the highway structures and features.

Crash Details Page

This page displays the metrics defined below. The data is current as of the date displayed at the bottom of the page and is sourced from the DMV Crash Database. The “Data current as of:” date defines the time period associated with the metric displayed in the gauge. If the data is current as of 08/30/2007, then the gauge is showing the metric value from 1/1/2007 to 08/30/2007.

Crash Count:

This is defined as the total number of crashes on NC roads for the calendar year to date (CYTD). The gauge is accompanied by a trend chart of the total number of crashes by year. This chart is based on the data displayed in the yearly statistics table in the row labeled crashes.

Fatality Count:

This is defined as the total number of fatalities on NC roads for the calendar year to date (CYTD). The gauge is accompanied by a trend chart of the total number of fatalities by year. This chart is based on the data displayed in the yearly statistics table in the row labeled fatalities.

Injury Count:

This is defined as the total number of injuries on NC roads for calendar year to date (CYTD). The number of injuries includes severe (Class A) and moderate (Class B) injuries only. The gauge is accompanied by a trend chart of the total number of injuries by year. This chart is based on the data displayed in the yearly statistics table in the row labeled injuries.

Yearly Statistics Table

This table displays the following metrics by calendar year. The last column displays “year to date” values of the current year based on the “Data current as of” date at the bottom of the page:

- Crashes – Total number of crashes on NC roads for the calendar year. The value of the last column is displayed in the CYTD Crash Count Gauge.
- Fatalities – Total number of fatalities on NC roads for the calendar year. The value of the last column is displayed in the CYTD Fatality Count Gauge.
- Injuries – Total number of severe and moderate injuries on NC roads for the calendar year. The value of the last column is displayed in the CYTD Injury Count Gauge.
- VMT (100MVM) – Total number of Vehicle Miles Traveled on NC roads for the calendar year in 100 Million Vehicle Miles scale. Therefore, a value of 1016.48 for 2006 means that 101648 Million Vehicle Miles were traveled on NC roads in 2006.
- Crash Rate – This is computed as crashes divided by VMT (100MVM).
- Fatality Rate – This is computed as fatalities divided by VMT (100MVM).
- Injury Rate – This is computed as injuries divided by VMT (100MVM).

Filter By Dropdown Box

The “Filter By” dropdown box allows the user to filter all the data displayed on the page to a county level. By default, the page displays statewide data. Selecting a county filters the three gauges, trend charts and the yearly statistics table to show values for the selected county.

Delivery Rate Details Page

This page displays the metrics defined below. The source and effective time period for each metric is explained with the definition:

Letting Success Rate:

The Letting Success Rate shows the percentage of Projects which were “Advertised for bid” on Schedule in Calendar 2007. The event of advertising for bid is also referred to as Letting. The Pre-Construction phase of a project is complete once it has been awarded to a Contractor for Construction. The Letting Success rate is computed by comparing the number of projects that were planned for Let at beginning of a Calendar Year to the actual number of projects that were Let in the year. This data is compiled manually by the Program Development group on a yearly basis.

Right of Way Success Rate:

The Right of way Success Rate shows the percentage of Projects which completed Right of Way on Schedule in Calendar 2007. The Right of way Success rate is computed by comparing the number of projects that were planned for Right of Way at beginning of a Calendar Year to the actual number of projects that were Let in the year. . This data is compiled manually by the Program Development group on a yearly basis.

Construction Projects on Schedule %:

This metric shows the % of all active highway construction projects that are on schedule. A project is on schedule if Actual Progress is within 15% of Scheduled Progress. This data is sourced from HiCAMs and is current as of today.

Construction Projects on Budget %:

This metric shows the % of all active highway construction projects that are on budget. A project is on budget if Over/Underrun % is less than 4%. This data is sourced from HiCAMs and is current as of today.

Average State Environmental Inspection Score:

This is the calendar year-to-date average score for all construction and maintenance projects statewide as inspected and graded by the Sedimentation and Erosion Control Program. This represents a statewide inspection composite score for Field Maintenance, Contract (TIP), and Bridge Maintenance projects. NCDOT management has established a target range of 7.5 to 8.8. The data for this gauge is sourced from the Sedimentation and Erosion Control Inspection Database.

Environmental Compliance Details Page

This page displays the metrics defined below. The data is current as of the date displayed at the bottom of the page and is updated monthly from the Department's Sedimentation and Erosion Control Inspection Database. The "Data current as of:" defines the time period associated with the metric displayed in the gauge. If the data is current as of 03/30/2008, then the gauge is showing the metric value from 1/1/2008 to 03/30/2008. The bar chart for "Monthly Averages for Project Inspection Scores" displays each calendar year month's average score for the three major project categories. As projects are inspected monthly and data entered into the inspection database the charts will be populated and adjusted accordingly.

Field Maintenance Projects Score (YTD AVG):

This is the average score for sediment and erosion control compliance for all projects and activities conducted or administered by field maintenance personnel. Field Maintenance projects typically include activities such as pavement maintenance, drainage maintenance and secondary road improvements. Projects are reviewed on a monthly basis to check for compliance with the North Carolina's Sedimentation and Pollution Control Act (SPCA). An overall grade is given to each project with the grading scale as follows: 10-Excellent, 9-Very Good, 8-Good, 7-Fair, 6 or below-unacceptable.

Contract Projects Score (YTD AVG):

This is the average score for sediment and erosion control compliance for all roadway and bridge projects constructed through the Department's Transportation Improvement Program (TIP). These projects are typically constructed through major contracts administered by Department field personnel. Projects are reviewed on a monthly basis to check for compliance with the North Carolina's Sedimentation and Pollution Control Act (SPCA). An overall grade is given to each project with the grading scale as follows: 10-Excellent, 9-Very Good, 8-Good, 7-Fair, 6 or below-unacceptable.

Bridge Maintenance Projects Score (YTD AVG):

This is the average score for sediment and erosion control compliance for all projects and activities conducted by field Bridge Maintenance personnel. Bridge Maintenance projects typically include maintenance and repair activities for pipes, culverts, and bridges, and the replacement of small, non-TIP bridge projects. Projects are reviewed on a monthly basis to check for compliance with the North Carolina's Sedimentation and Pollution Control Act (SPCA). An overall grade is given to each project with the grading scale as follows: 10-Excellent, 9-Very Good, 8-Good, 7-Fair, 6 or below-unacceptable.

Filter By Dropdown Box

The Filter By: dropdown box allows the user to filter all the data displayed on the page to a County. By default, the page displays statewide data. Selecting a county filters the three Gauges and the trend chart to show values for the selected County.

Monthly Averages for Project Inspection Scores

This bar chart display a monthly breakdown for the three metrics defined above, for the current Calendar Year.

Infrastructure Health Details Page

This page displays the metrics defined below. This data is current as of 7/30/08.

Pavement Condition:

Pavement condition is defined as the % of lane miles in good condition. A good condition for pavement is defined as PCR (Pavement Condition Rating) value of 80 or higher (on a 0 to 100 scale). The PCR score displayed is a composite score determined using a pavement condition survey performed annually for interstate routes and every two years for primary and secondary routes. The survey uses the complete roadway length for all asphalt surfaced roadways and a sampling of every mile of concrete pavement.

Bridge Health Index:

Bridge health index is defined as the % of bridges in good condition. A bridge is considered to be in good condition if the Level of Service (LOS) for Deck, Sub-Structure and Super Structure are all greater than or equal to 6 (on a 1 to 9 scale). Bridge health indices are determined using a bridge condition survey in which each bridge in the state is surveyed every 2 years. The results displayed are the most recent composite scores for the surveys.

Roadside Feature Condition:

The Roadside Feature Condition is defined as a weighted value score that represents the physical condition of all highway features and elements excluding pavement and bridges which are captured by the two previous metrics described above. The roadside feature Level of Service (LOS) for roads is determined, for the most part, by evaluating samples of 0.2 mile segments of road for various elements such as:

- Shoulders and Ditches – Low Shoulder, High Shoulder, Lateral Ditches
- Drainage – Blocked or Damaged Pipes and Gutters
- Roadside – Mowing, Brush and Tree Control, Litter and Debris, Slope and Guardrail
- Traffic Control Devices – Traffic signs, Pavement Markings, Traffic Signals
- Environmental – Turf Condition, Miscellaneous Vegetation Management

In 2006, the survey results provide a LOS value on a statewide basis for the interstate system, and by county for the primary and secondary systems. The LOS value reflects a composite score of the surveyed elements (as described above) that were in acceptable range for the LOS (on a 0 to 100 scale).

Trend Chart:

The trend chart displays the values for Infrastructure Health metrics (Pavement Condition, Bridge Health Index, and Roadside Feature Condition) as defined above for years 2002, 2004 and 2006. The surveys from 2002 and 2004 do not have a breakdown by county. As a result the trend chart always shows the statewide numbers.

Data Table:

The data table shows the values in the trend chart. The data table is not updated by the county dropdown and shows the statewide numbers.

Filter By Dropdown Box

The “Filter By” dropdown box allows the user to filter the Pavement Condition, Bridge Health Index and Roadside Feature Condition by desired county. By default, this page displays statewide data. Selecting a desired county will filter the three gauges to show values for the selected county.

Moving Goods and People Details Page

This page displays the Department's performance of moving people and goods more efficiently. These gauges are key performance measures of how well the Department is accomplishing this goal.

The target for these performance measures, data source and effective time periods are identified below.

Incident Clearance Time:

Highway congestion can be categorized into either recurring congestion (such as rush hour traffic) or non-recurring congestion (such as congestion caused by accidents, weather, work zones, etc.). Incident clearance time measures non-recurring congestion. National studies show that over 50% of all congestion is non-recurring. This gauge depicts the average time in minutes it takes to clear a major incident (i.e. one that causes significant or unusual delays) from a North Carolina highway. This data is sourced from NCDOT's Traveler Information Management System (TIMS), which includes real time traffic information from across the state. NCDOT has established a target of 90 minutes or less to re-open the facility to traffic, which is also the national goal. The dropdown box allows the user to filter the incident clearance time data by county. By default the gauge displays the statewide average incident clearance time.

Ferry Service Reliability:

Ferry Service Reliability measures the success rate of each ferry meeting its daily scheduled runs. NCDOT has established a target of meeting 97% of its scheduled runs. The NCDOT Ferry Division schedules over 75,000 ferry trips per year. The drop down menu allows the user to filter by one of the seven ferry routes that the Ferry Division operates. By default the drop down menu displays the overall ferry system rate of providing the daily scheduled runs.

Rail Service Ridership:

Rail Service Ridership measures the number of intercity rail passengers served per year. The NCDOT Rail Division serves over 500,000 intercity rail passengers per year from various North Carolina cities. The gauge displays the 2007 calendar year success rate for increasing statewide intercity ridership by 3% from the previous year. The drop down menu allows the user to filter by the two rail lines that the Rail Division sponsors primarily, the Carolinian and Piedmont. By default the drop down menu displays the statewide ridership of all rail lines. The Rail Service Ridership graph depicts the increase in rail ridership over the last 20 years. The green bar depicts the trend line.

Public Transit Utilization:

The Public Transit Utilization gauge measures the total annual commuter vehicle miles traveled (VMT) saved through implementing various transportation options such as mass transit, vanpools, carpools and light rail. The goal, based on year 2000 data as the foundation, is to reduce the VMT growth by 25% by July 1, 2009 as directed by NC Senate Bill 953. Currently NCDOT has exceeded that goal.

What is VMT? Vehicle miles traveled (VMT) is defined as total distance traveled in miles by all motor vehicles in a selected region in a given period of time.

Highway Reliability:

The Highway Reliability pie chart measures the percent of miles of recurring congestion on the "Strategic Highway Corridors." By clicking on the pie chart, the user is redirected to a state map outlining each county. To view recurring congestion levels within a specific region, simply click on a county to take the user to an appropriate color coded map with the recurring congestion levels on the identified Strategic Highway Corridors.

Within the pie chart and maps, the green depicts the percent that has *little or no* recurring congestion (a volume to capacity ratio of less than 0.80). The yellow depicts the percent that has *some* recurring congestion (a volume to capacity ratio of 0.80-1.00). The red depicts the percent that has *strong* recurring congestion (a volume to capacity ratio of greater than 1.00). The gray depicts the percent that no data currently exists.

What are the Strategic Highway Corridors? The Strategic Highway Corridors (SHC) initiative represents a timely effort to preserve and maximize the mobility and connectivity on a core set of highway corridors, while promoting environmental stewardship through maximizing the use of existing facilities to the extent possible, and fostering economic prosperity through the quick and efficient movement of people and goods. The initiative offers NCDOT and its stakeholders an opportunity to consider a long-term vision when making land use decisions and design and operational decisions on the transportation system. The 5,400 miles of designated Strategic Highway Corridors, which include existing and proposed interstates, account for only 7% of the state's total highway system, but carry 45% of the traffic.

Position Title

	Metrics	Definition of Measure/Comments
Make Our Transportation Network Safer		
Make our transportation network move people and goods more efficiently		
Make our infrastructure last longer	<ul style="list-style-type: none"> • Delivery of Bridge Replacement Program 	<ul style="list-style-type: none"> • Number of major milestones met on bridge replacement projects (planned vs. actual) (<i>Let and Construction Completed</i>)
Make our organization a place that works well	<ul style="list-style-type: none"> • Projects/Programs/Services on Schedule and on Budget • Business Development and Outreach • Customer Service • Fiscal Management 	<ul style="list-style-type: none"> • Number of major milestones met (planned vs. actual) (<i>concurrence points, Let, Div. maintenance projects NPDES program</i>) • % solicitations sent to, % of bids received from, & % of contract dollars awarded to DBEs, MBEs, WBEs, SBEs, & HUBs • Customer satisfaction survey scores • % improvement of existing administrative budget
Make our organization a great place to work	<ul style="list-style-type: none"> • Employee Safety • Employee Satisfaction • Recruiting, Developing and Retaining Employees 	<ul style="list-style-type: none"> • Number of incidents, lost work days, worker's comp claims • Employee satisfaction survey composite score • Retention rate of "Top Performers" and / or stabilization rate

GUIDE FOR PERFORMANCE DASHBOARD AND APPRAISAL SCORECARD

FOR USE IN PERFORMANCE REVIEW MEETINGS

[illegible]

Working Draft

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CONFIDENTIAL

Performance Metrics & Management Summary Working Document: Context and Metric Generation



Discussion Document

August 2007

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PERFORMANCE METRICS AND MANAGEMENT

Core questions

- ① What work will the performance metrics and management team complete?
- ② How will NCDOT gauge its performance over time?
- ③ How will NCDOT manage its performance metrics?
- ④ How will the new performance management scheme be rolled out through the organization?

Deliverable

- ① Context and initiatives
- ②a Value tree describing core value drivers for NCDOT, linked to vision and goals
- ②b High-level performance dashboard containing metrics based on prioritized value drivers
- ②c Division and branch/unit-level dashboards generated by cascading the high-level dashboard metrics through NCDOT
- ③a Performance targets for NCDOT high-level dashboard metrics
- ③b List/schedule for multi-level performance reviews with associated agendas
- ③c Guidelines for shifting mind-sets toward metrics-based management
- ④a List of key stakeholders needed to facilitate introduction of metrics-based management
- ④b Task/engagement checklist to enable performance metric planning
- ④c Plan to launch performance management pilot
- ④d Next steps

PERFORMANCE METRICS AND MANAGEMENT- CONTEXT AND INITIATIVES

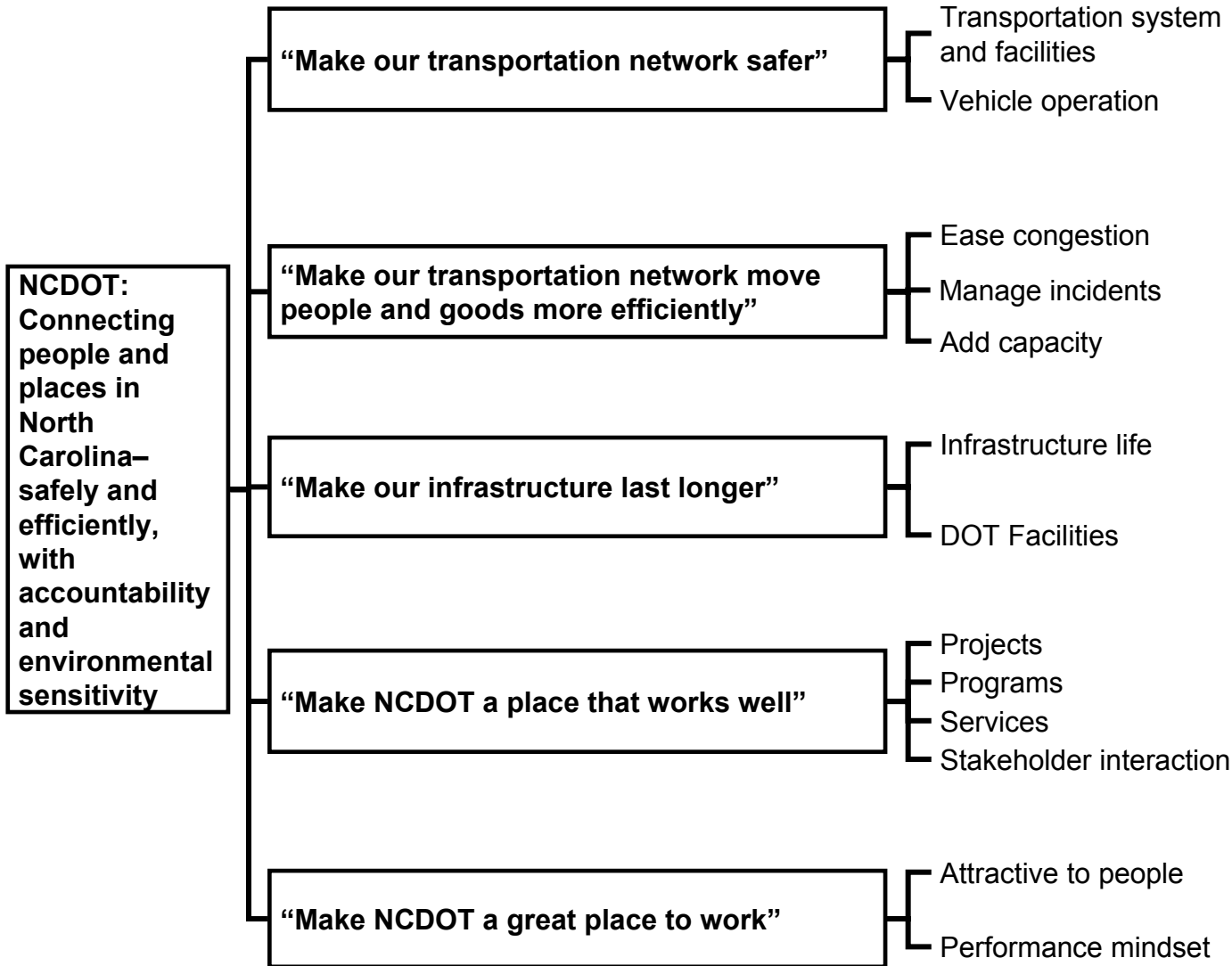
Context

- **There has been some implementation of performance management measures within business units, but those efforts are not explicitly linked to NCDOT nor other business unit priorities**
 - Only 36% of employees agree/strongly agree that “employees day-to-day behavior is guided by the NCDOT’s strategy.”
 - Only 44% of employees observe always/often that “operating measures are clearly defined in each area of the organization.”
- **NCDOT’s ad hoc nature of performance indicator generation sometimes led to conflicting needs between units**
 - Diagnostic found that different parts of organization have different levels of focus on metrics like cost, quality, and timing
 - Only 37% of employees observe always/often that “NCDOT holds challenging reviews to evaluate performance against the operational plan/key performance indicators.”

Initiatives

- Develop performance metrics
 - Determine NCDOT value drivers linked to vision and goals
 - Prioritize value drivers and generate high-level performance metrics
 - Cascade metrics downward through NCDOT
- Develop metrics management methodology
 - Establish performance targets
 - Introduce multi-level quarterly performance review process
 - Create methodology to link metrics with individual performance reviews
- Develop rollout plan
 - Conduct training sessions to adjust mindsets toward metrics-based management
 - Launch process for adjusting information systems to track and post metrics internally and externally
 - Create rollout plan for introduction of quarterly business reviews

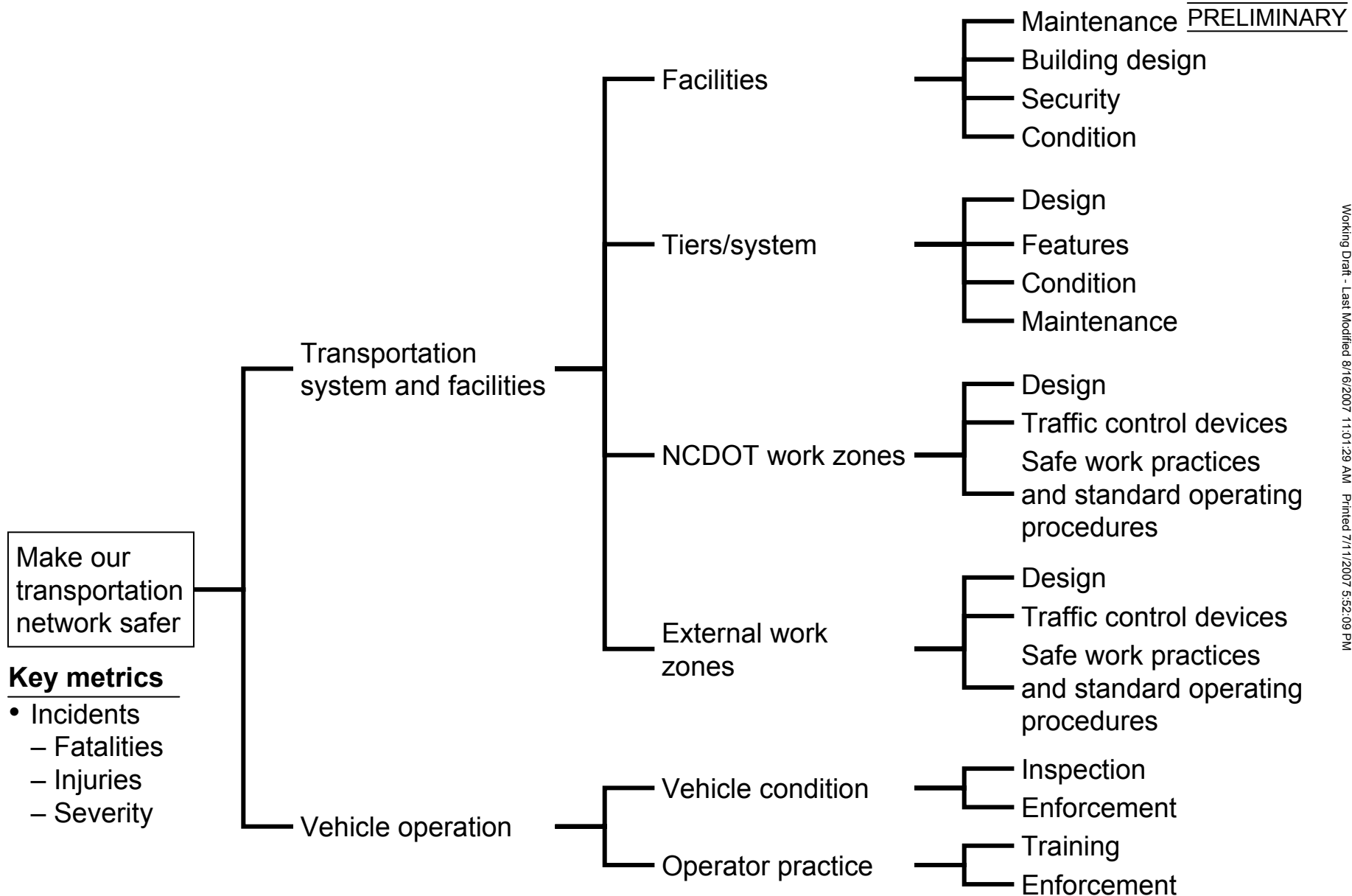
BEFORE PERFORMANCE METRICS CAN BE DEVELOPED, THE MAJOR DRIVERS OF VALUE FOR NCDOT MUST BE DETERMINED



- The intention of this value tree is to provide a holistic view of what is valuable to NCDOT for use in developing NCDOT's high-level dashboard
- The ultimate goal is to iteratively improve upon the tree over time and have it become a useful tool for performance measurement and planning within NCDOT

MAKE OUR TRANSPORTATION NETWORK SAFER

2a

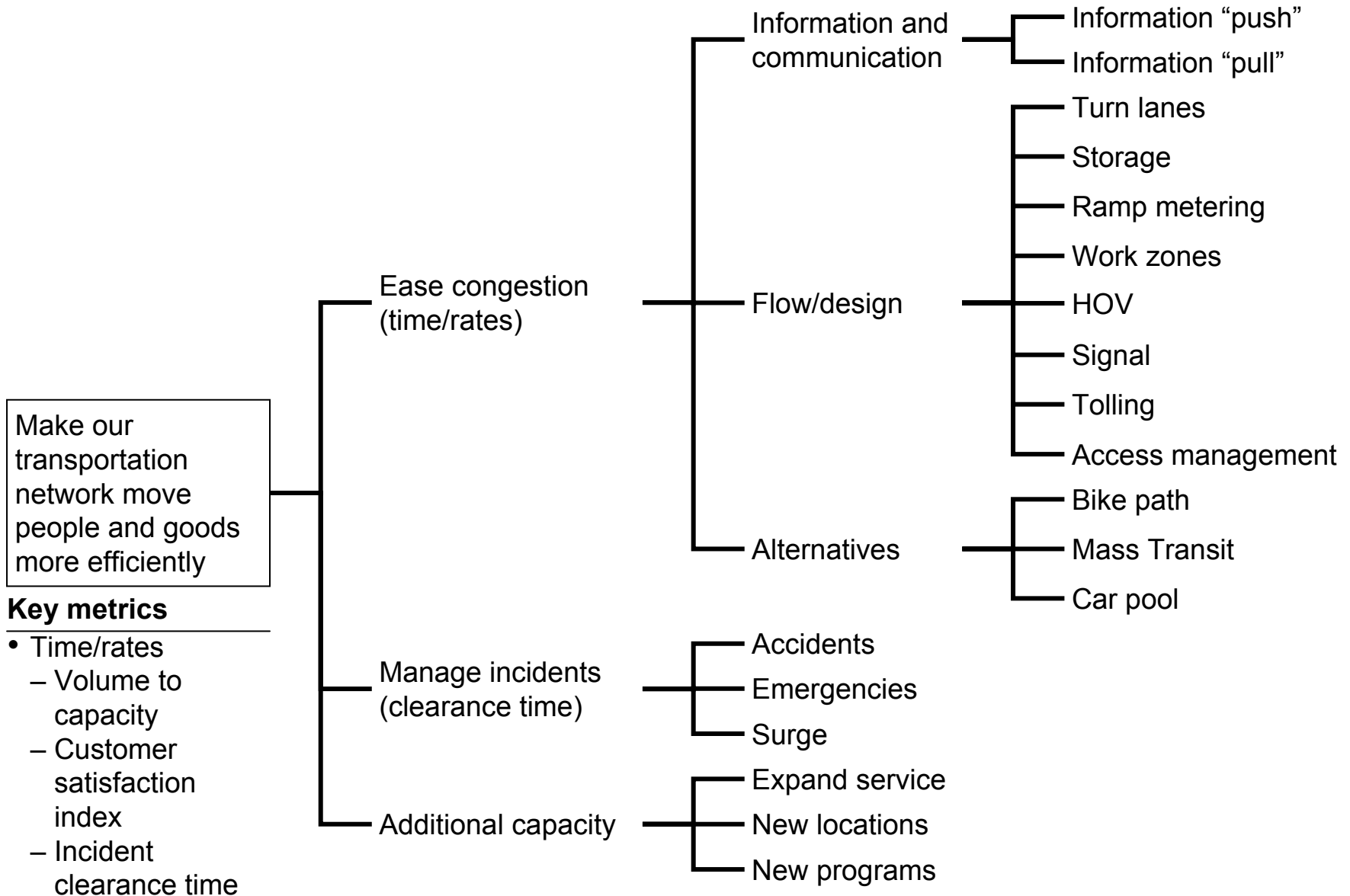


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MAKE OUR TRANSPORTATION NETWORK MOVE PEOPLE AND GOODS MORE EFFICIENTLY

2a

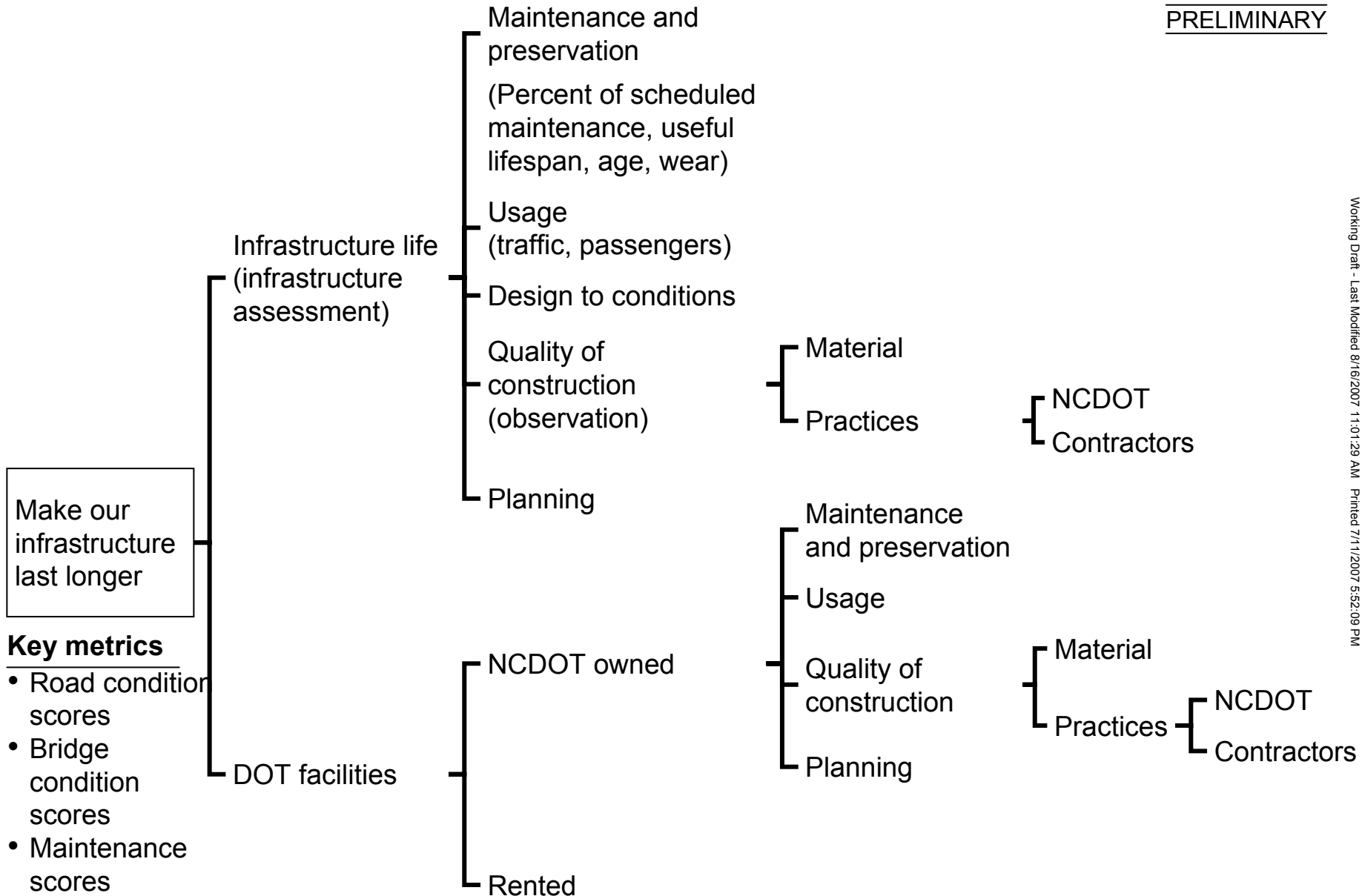
PRELIMINARY



MAKE OUR INFRASTRUCTURE LAST LONGER

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PRELIMINARY

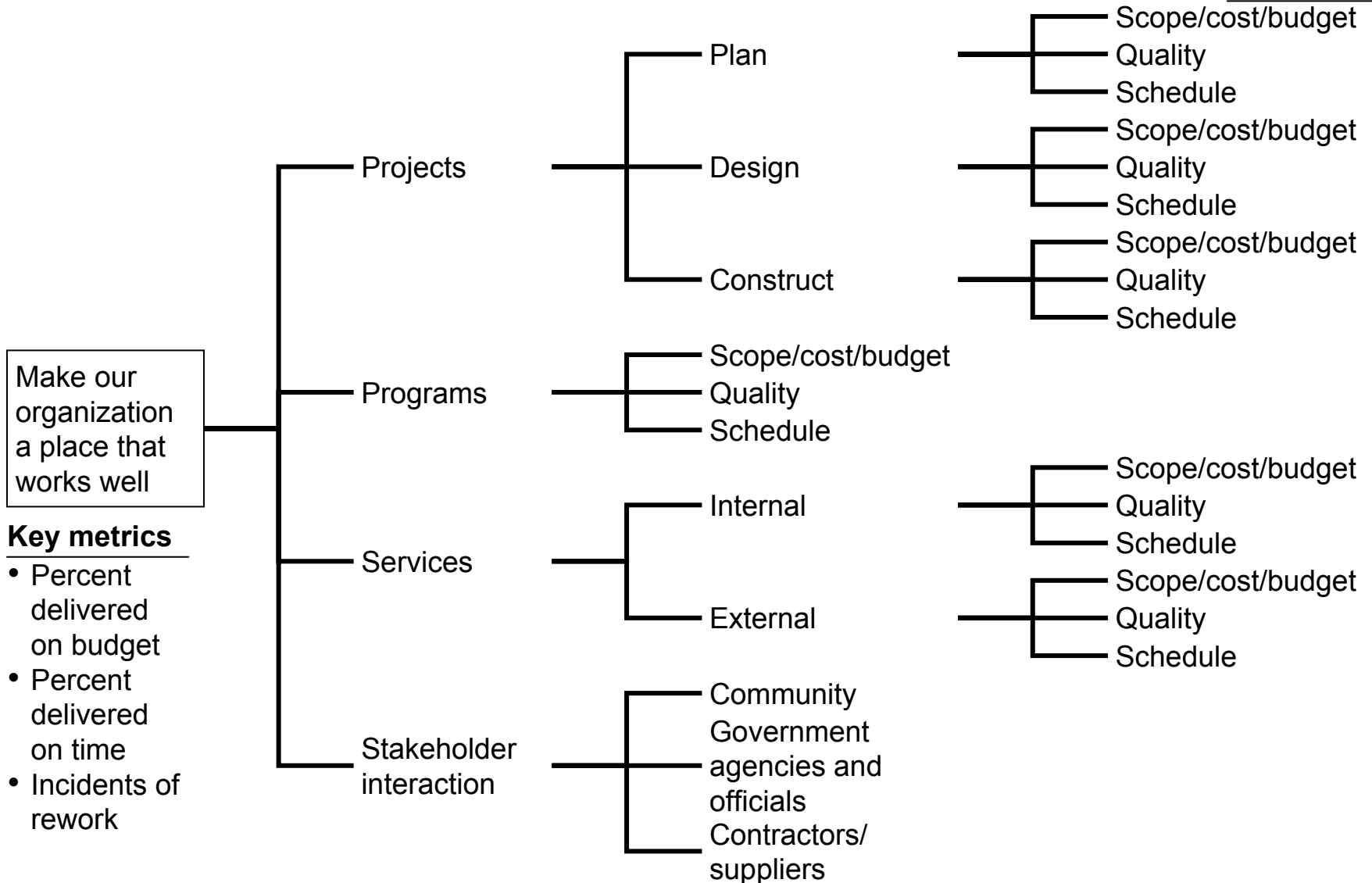


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MAKE OUR ORGANIZATION A PLACE THAT WORKS WELL

2a

PRELIMINARY

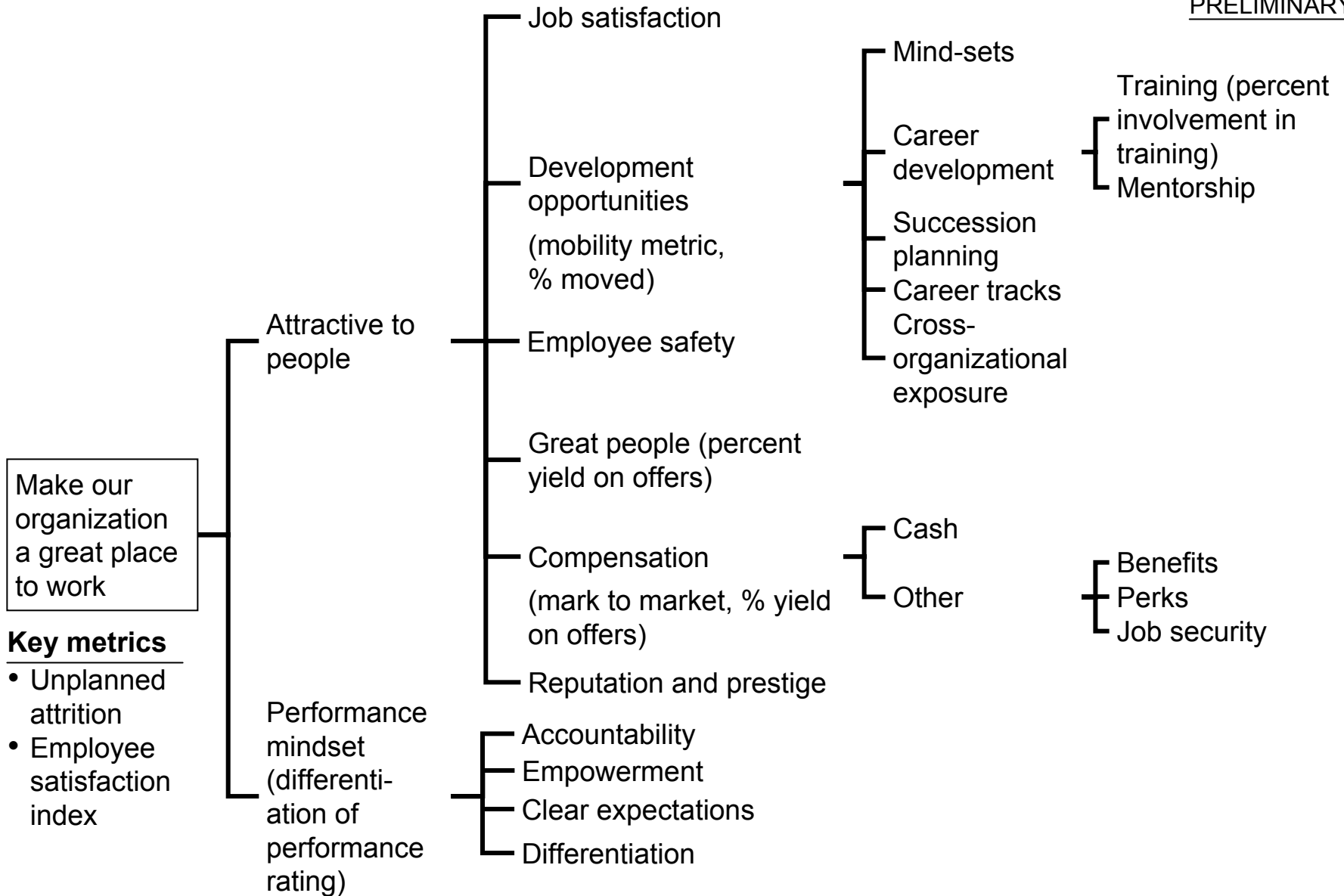


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MAKE OUR ORGANIZATION A GREAT PLACE TO WORK

2a

PRELIMINARY



WHAT ARE PERFORMANCE DASHBOARDS AND WHY ARE THEY USED?

2b

What is a performance dashboard?

- A performance dashboard is a visual representation of the overall health of an organization*

How is a performance dashboard developed and readied for use?

- Build a value tree to determine key drivers of value for organization
- Develop high-level organization-wide metrics from the identified value drivers
- Establish targets for the high-level metrics
- Develop metrics and associated targets for divisions, branches, and units

Why use a performance dashboard?

Dashboards allow organizations to:

- Monitor critical business processes and activities using metrics of business performance that trigger alerts when potential problems arise*
- Analyze the root cause of problems by exploring relevant and timely information from multiple perspectives and at various levels of detail*
- Manage people and processes to improve decisions, optimize performance and steer the organization in the right direction*

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NCDOT'S EXECUTIVE DASHBOARD PROVIDES A MEANS FOR GAUGING OVERALL ORGANIZATIONAL PERFORMANCE

2b

DRAFT

	Metrics	Comments
"Make our transportation network safer"	<ul style="list-style-type: none"> Fatal accident (incident) rates on NCDOT transportation network 	<ul style="list-style-type: none"> "Hard" numerical data for measuring performance of systems -i.e. various transit modes, safety operating procedures for employees Most state DOTs track traffic fatalities Fatalities per 100 million vehicle miles traveled - National goal is 1.0, We are currently at ~1.58. What does this mean in actual numbers ?
"Make our transportation network move people and goods more efficiently"	<ul style="list-style-type: none"> Travel time Congestion (level of service) 	<ul style="list-style-type: none"> Indicator of system performance - actual vs. ideal travel time on transportation system Use average speed (operating) on representative sample sites for different tiers Ratings exists for reporting. Can compare NC vs. National congestion and then set goals On representative sample sites, determine when the peak congestion time is and how long it lasts
"Make our infrastructure last longer"	<ul style="list-style-type: none"> Existing system conditions <ul style="list-style-type: none"> Road Bridge Other Book value of transportation network 	<ul style="list-style-type: none"> Infrastructure currently being measured by Operations Provides a view of how maintenance activities and new construction affect the value of the network over time
"Make our organization a place that works well"	<ul style="list-style-type: none"> Delivery on schedule Delivery on budget 	<ul style="list-style-type: none"> Ideal metric for future measure is "% of projects, programs, and services completed on schedule and on budget for a given year", but it would require coordination between NCDOT divisions/departments Current measures are highways-focused, but should serve as guides for what could be tracked for alternative modes
"Make our organization a great place to work"	<ul style="list-style-type: none"> Employee satisfaction index Employee safety incidents 	<ul style="list-style-type: none"> Employee satisfaction can be gauged based on survey results. Easily tracked and shows trends. Currently being measured Department-wide and shows we care about the employees

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MORE SPECIFICALLY, THE DASHBOARD METRICS WILL MEASURE QUANTITATIVE DATA THAT CAN BE LINKED TO PERFORMANCE (1/3)

DRAFT

Dashboard metric	Definition of measure	Source of data	Comments
Fatal accident rates on NCDOT transportation network	<ul style="list-style-type: none"> Number of fatal accidents on the NCDOT transportation system per X miles traveled 	<ul style="list-style-type: none"> Kevin Lacey 	<ul style="list-style-type: none"> Federal standards exist for highways Allows for direct comparisons to other states
Travel time	<ul style="list-style-type: none"> Avg. speed limit per mile Frequency of service for buses, ferries, etc 	<ul style="list-style-type: none"> Kevin Lacey Kelly Damron 	<ul style="list-style-type: none"> Intended to gauge the effectiveness of travel on the transportation system
Congestion	<ul style="list-style-type: none"> Numerical indicator of level of service experienced at peak travel times 	<ul style="list-style-type: none"> Kevin Lacey Kelly Damron 	<ul style="list-style-type: none"> Based on NCHRP guidelines and/or sensor read-outs Intended to gauge ability to handle load on the system Need to meet with Kevin Lacey for available data How should alternative modes be handled? Need to performing mapping of levels of service to numerical values
Existing system conditions	<ul style="list-style-type: none"> Numerical indicator of level of service for roads Bridge sufficiency ratings 	<ul style="list-style-type: none"> Terry Canales 	<ul style="list-style-type: none"> Need to incorporate ratings for non-core portions of system Is there a way to use some sort of blended metric? Need to performing mapping of levels of service to numerical values

MORE SPECIFICALLY, THE DASHBOARD METRICS WILL MEASURE QUANTITATIVE DATA THAT CAN BE LINKED TO PERFORMANCE (2/3)

DRAFT

Dashboard metric	Definition of measure	Source of data	Comments
Book value of transportation network	<ul style="list-style-type: none"> Dollar value of assets in the NCDOT transportation network 	<ul style="list-style-type: none"> NCDOT Fiscal 	<ul style="list-style-type: none"> Need to find out who is responsible for the calculation of the book value of transportation network
Delivery on schedule	<ul style="list-style-type: none"> % of projects constructed on schedule in a given year <ul style="list-style-type: none"> – Calculated as [Projects completed by scheduled date] divided by [Total projects scheduled to be completed] % of projects let on schedule in a given year <ul style="list-style-type: none"> – Calculated as [Projects let by scheduled date] divided by [Total projects scheduled to be let] 	<ul style="list-style-type: none"> STaRS HiCAMS 	<ul style="list-style-type: none"> Ideal metric for future measure is “% of projects, programs, and services completed on schedule for a given year”, but it would require coordination between NCDOT divisions/departments Current measures are highways-focused, but should serve as guides for what could be tracked for alternative modes
Employee safety incidents	<ul style="list-style-type: none"> Number of safety incidents involving NCDOT staff while on duty 	<ul style="list-style-type: none"> Safety and Loss Control (Bob Andrews) 	<ul style="list-style-type: none"> The given measure is only preliminary, pending a discussion with Bob Andrews about what data he tracks about employee safety incidents

MORE SPECIFICALLY, THE DASHBOARD METRICS WILL MEASURE QUANTITATIVE DATA THAT CAN BE LINKED TO PERFORMANCE (3/3)

DRAFT

Dashboard metric	Definition of measure	Source of data	Comments
Delivery on budget	<ul style="list-style-type: none"> • % of projects completed on budget in a given year <ul style="list-style-type: none"> – Calculated as [Projects completed on budget set in TIP] divided by [Total projects completed] • % of projects let on budget in a given year <ul style="list-style-type: none"> – Calculated as [Projects let on budget set in TIP] divided by [Total projects let] 	<ul style="list-style-type: none"> • STaRS • HiCAMS 	<ul style="list-style-type: none"> • Ideal metric for future measure is “% of projects, programs, and services completed on budget for a given year” , but it would require coordination between NCDOT divisions/departments • Current measures are highways-focused, but should serve as guides for what could be tracked for alternative modes
Employee engagement index	<ul style="list-style-type: none"> • Numerical index of employee engagement, as determined by survey results 	<ul style="list-style-type: none"> • NCDOT employee survey (to be developed and issued later) 	<ul style="list-style-type: none"> • Survey to be issued at the same time each year to account for seasonal changes in employee moods • Survey questions must be general enough to include all DOT employees, but specific enough to provide productive insights

EXECUTIVE DASHBOARD DATA WILL BE ENTERED INTO A SCORECARD FOR USE IN PERFORMANCE REVIEW MEETINGS

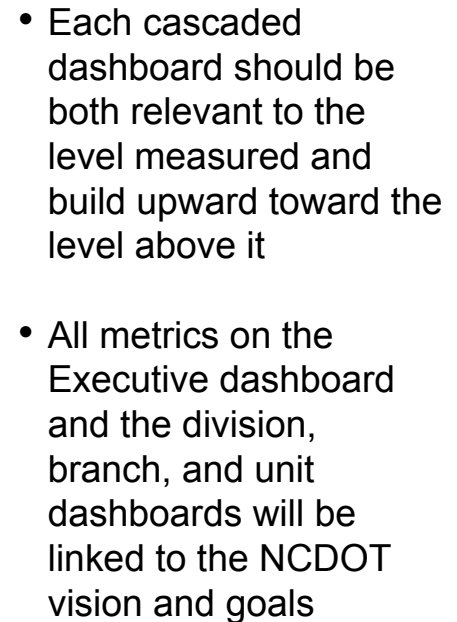
2b

PRELIMINARY

Metric	Metric Data	Data Source	Included in PM Form (Y/N)	Importance Weighting (%)	Updated as of (Date)
• Fatal accident (incident) rates on NCDOT transportation network	• TBD	• TBD	• TBD	• TBD	• TBD
• Travel time	• TBD	• TBD	• TBD	• TBD	• TBD
• Congestion (level of service)	• TBD	• TBD	• TBD	• TBD	• TBD
• Existing system conditions	• TBD	• TBD	• TBD	• TBD	• TBD
• Book value of transportation network	• TBD	• TBD	• TBD	• TBD	• TBD
• Delivery on schedule	• TBD	• TBD	• TBD	• TBD	• TBD
• Delivery on budget	• TBD	• TBD	• TBD	• TBD	• TBD
• Employee satisfaction index	• TBD	• TBD	• TBD	• TBD	• TBD
• Employee safety incidents	• TBD	• TBD	• TBD	• TBD	• TBD

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2c



... BUT THE DEVELOPMENT OF THESE CASCADED METRICS AND ASSOCIATED SCORECARDS IS STILL IN PROGRESS

	Approach	Key participants	Key outputs	Status	Deadline
Executive dashboard	<ul style="list-style-type: none"> PMM team creates high-level value tree and reviews it with TMT and leadership team PMM team develops executive dashboard metrics from value tree PMM team develops plan for periodic reviews 	<ul style="list-style-type: none"> PMM team Leadership team TMT 	<ul style="list-style-type: none"> NCDOT executive dashboard metrics Plan/agenda for periodic reviews Targets for metrics High-level value trees 	<ul style="list-style-type: none"> In progress (metrics complete, prep for reviews TBD) 	<ul style="list-style-type: none"> Early to mid September 2007
Division director metrics	<ul style="list-style-type: none"> Executive committee members participate in metric generation activity PMM team develops draft metrics based on Executive committee activity output PMM team reviews draft metrics with Division directors and does iterative updates PMM team presents metrics to TMT and Leadership team PMM team develops plan for periodic reviews 	<ul style="list-style-type: none"> PMM team Division directors TMT Executive committee 	<ul style="list-style-type: none"> Metrics for Division directors Plan/agenda for periodic reviews Targets for metrics 	<ul style="list-style-type: none"> In progress 	<ul style="list-style-type: none"> Early to mid September 2007
Branch head metrics	<ul style="list-style-type: none"> Executive committee members participate in metric generation activity PMM team develops draft metrics based on Executive committee activity output PMM team reviews draft metrics with Branch heads and does iterative updates PMM team presents metrics to TMT, Leadership team, and Division directors PMM team develops plan for periodic reviews 	<ul style="list-style-type: none"> PMM team Branch heads Division directors TMT Executive committee 	<ul style="list-style-type: none"> Metrics for Branch heads Plan/agenda for periodic reviews Targets for metrics 	<ul style="list-style-type: none"> In progress 	<ul style="list-style-type: none"> Early to mid September 2007
Unit head metrics	<ul style="list-style-type: none"> PMM asks for support from Division directors and/or Branch heads to generate draft metrics for Unit heads PMM reviews draft metrics with Unit heads and does iterative updates PMM reviews draft metrics with Branch heads and does updates, if necessary PMM team develops plan for periodic reviews 	<ul style="list-style-type: none"> PMM team Unit heads Branch heads and/or Division directors TMT Leadership team 	<ul style="list-style-type: none"> Metrics for Unit heads Plan/agenda for periodic reviews Targets for metrics 	<ul style="list-style-type: none"> In progress 	<ul style="list-style-type: none"> Mid to late September 2007
Front line metrics	<ul style="list-style-type: none"> Unit heads develop metrics and targets for their frontline staff PMM team reviews frontline metrics to gauge measurability, fit as metrics, and linkage to NCDOT vision and goals 	<ul style="list-style-type: none"> Unit heads PMM team (advisory role) 	<ul style="list-style-type: none"> Metrics for frontline staff Targets for metrics 	<ul style="list-style-type: none"> Not started 	<ul style="list-style-type: none"> December 2007-January 2008

EXAMPLE: PERFORMANCE METRICS FOR DIVISION ENGINEERS

2c

DRAFT

“Make our transportation network safer”

- Implementation of Division Work Zone Safety Program
- Improve Level of Service of Safety Features throughout Division

- # of issues identified per Work Zone Safety Audit report
- Avg level of service (A-F) on MCAP items related to safety such as shoulder drop-offs, guardrail, sight distance, brush & tree control, clogged drains (spread), etc.

“Make our transportation network move people and goods more efficiently”

- Enhance mobility on Strategic Highway Corridor
- Maintain operational efficiency on traffic control devices throughout Division, institute information sharing systems that reduce congestion and efficiently manage incidents throughout Division
- Access mgmt throughout the Division

- Average operating speed on portions of Strategic Highway Corridor that run through Division
- Travel time reliability- standard deviation of avg. commuter time in selected urban areas; Avg. # of minutes from incident to all lanes open; Avg. # of minutes from incident to TIMS data input
- Number of driveway permits issued in compliance with Policy on Street & Driveway Access Policy

“Make our infrastructure last longer”

- Level of service of Division-wide infrastructure
- Quality assurance and control during construction

- Level of service (A-F) of Division-wide infrastructure
 - Maintenance Condition Survey score
 - Bridge Condition Survey Score
 - Pavement Condition Survey Score
- MCAP Construction Quality Index

“Make our organization a place that works well”

- Projects managed,administered, and constructed on schedule and on budget
- Pave roads efficiently
- HUB/SBE/WBE/MBE/DBE participation/opps
- Stakeholder interaction

- % of projects managed/administered by Divisions constructed on schedule and on budget
- % of DDL projects (& other programs) let on schedule and on budget
- Miles paved per dollar spent on paving
- % of solicitations sent to DBEs, etc.
- % of bids received from DBEs, etc.
- % of contract dollars awarded to DBEs, etc.
- Customer survey scores (public, partners, etc.)

“Make our organization a great place to work”

- Employee Safety
- Employee Satisfaction
- Recruiting, developing and retaining employees

- Number of incidents, lost work days, worker’s comp claims
- Employee satisfaction survey composite score
- % vacancy rate

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DIVISION/DEPUTY SECRETARY-LEVEL METRICS CHECKLIST

PRELIMINARY

Group	Position	Current contact	Status of metrics (Not started, Draft, In progress, Complete)	Expected completion date	Comments
• Administration & Business development	• Deputy Secretary	• Willie Riddick	• Draft	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX

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BRANCH-LEVEL METRICS CHECKLIST

			Status of metrics (Not started, Draft, In progress, Complete)		Expected completion date	PRELIMINARY Comments
Group	Position	Current contact				
• Financial Mgmt. division/Program development	• Branch Manager	• Calvin Leggett	• Draft		• XXX	• XXX
• XXX	• XXX	• XXX	• XXX		• XXX	• XXX
• XXX	• XXX	• XXX	• XXX		• XXX	• XXX
• XXX	• XXX	• XXX	• XXX		• XXX	• XXX
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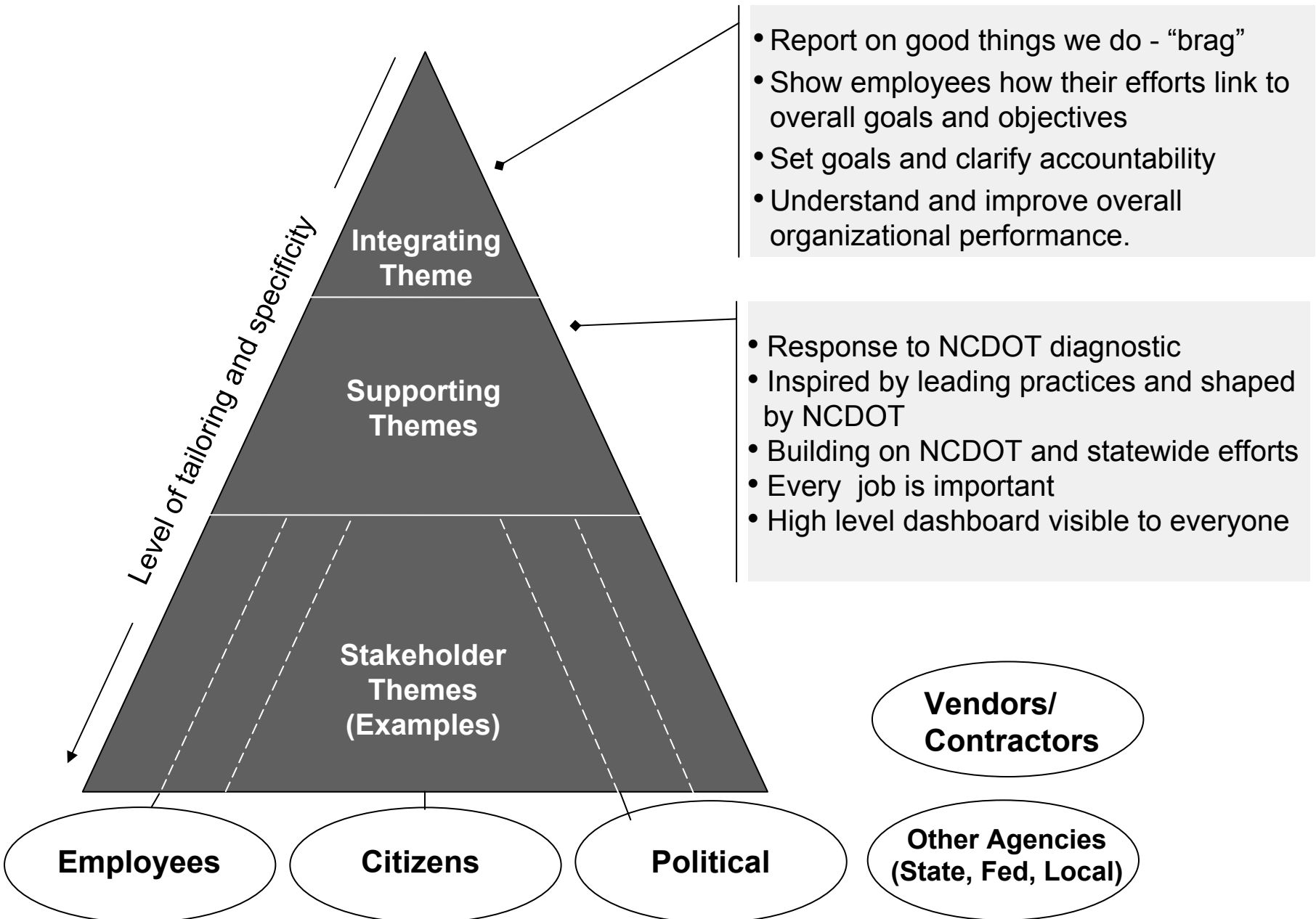
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UNIT-LEVEL METRICS CHECKLIST

PRELIMINARY					
Group	Position	Current contact	Status of metrics (Not started, Draft, In progress, Complete)	Expected completion date	Comments
• Operations/ Field Ops/ Division 10	• Division Engineer	• Barry Moose	• Draft	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
• XXX	• XXX	• XXX	• XXX	• XXX	• XXX
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'STORY' PYRAMID FOR PERFORMANCE METRICS AND MANAGEMENT TEAM:



STAKEHOLDER IMPACT TIMELINE

Date	Stakeholder	Objective	Basic Message
Sept 07	Employees	Gather Input	What metrics are relative to your Division/Branch/Unit?
Nov 07	Employees	Disseminate	These are your metrics - Now they must be cascaded down through your division/branch/unit
Mar 08	Employees	Gather Input	Receive metrics from div/brnch/units
June 08	Contractors/ Vendors	Gather Input	Here are DOT metrics. What metrics are relative to your business with DOT.
Aug 08	Contractors/ Vendors	Gather Input	Receive input from contractors
Sept 08	Contractors/ Vendors	Disseminate	Here are your metrics relative to business with DOT.
Jan 08	Political, Agencies, Citizens	Disseminate	Here are DOT and contractor performance metrics

CONFIDENTIAL

Executive Committee Performance Metrics and Management Workshop



Discussion Document

July 31st, 2007

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TODAY'S WORKSHOP

Objectives

- Introduce best practice performance metrics and management concepts
- Review diagnostic findings about current NCDOT performance metrics and management
- Gain Executive Committee input on potential performance metrics for highest levels of organization

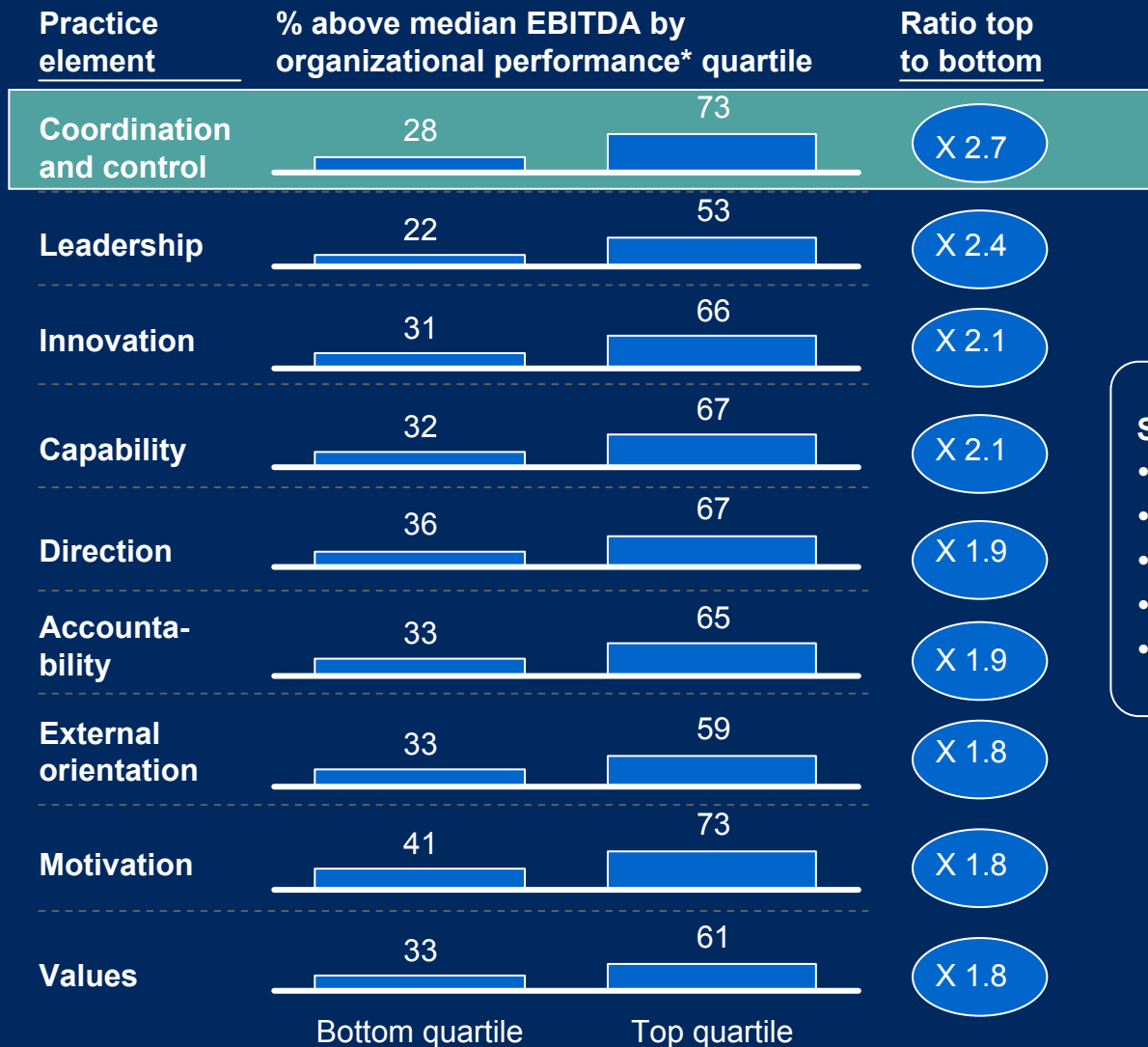
Schedule

- Performance metrics and management best practices (10 minutes)
- Diagnostic results in performance metrics and management (5 minutes)
- Ongoing TMT work on performance metrics and management (15 minutes)
- Executive Committee discussion of performance metrics for NCDOT (60 minutes)

WHAT IS “*PERFORMANCE METRICS AND MANAGEMENT*“ AND WHY DOES IT MATTER?

- Performance management is the complete set of systems, processes and behaviors that set expectations, follow up on results and solve problems from the top of the organization to the frontline
- Key to performance management is setting the metrics to which the organization will manage. Metrics are a vehicle for changing the process by which an organization is managed.
 - They are intended to be the most important information required to manage a business and they help overcome the problem of ‘not being able to see the wood for the trees’
 - They facilitate stronger management processes which encourage continual improvements in decision making and action
- Effective and balanced performance metrics and management disciplines have a demonstrated impact on financial and operational performance
 - Effective performance management is strongly linked to higher financial and operational performance
 - Best practice performance management approaches are core to numerous leading organizations
- Top management’s role is to ensure performance management is done well. Once the basics are in place, organizations have to go beyond them to create effective performance management that safeguards, drives and transforms organizations
- Effective performance management goes beyond getting the process rights; it also involves changing mindsets and behaviors

OF ALL ORGANIZATIONAL PRACTICES, PERFORMANCE METRICS AND MANAGEMENT HAS THE STRONGEST LINEAR LINK TO OUTCOMES



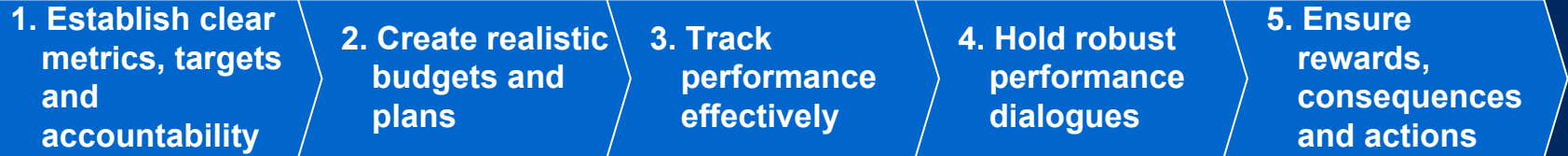
Coordination and control defined as 'business performance and risk are measured and reported'

Similar results for

- Growth in enterprise value
- Growth in enterprise value/book value
- Growth in enterprise value/sales
- Growth in book value/sales
- Growth in net income/sales

GREAT FIRMS HAVE STRONG PERFORMANCE METRICS AND MANAGEMENT

Performance management process



- | | | | | |
|--|--|---|--|---|
| <ul style="list-style-type: none"> • Challenging targets set top-down based on strategy • Mostly financial | <ul style="list-style-type: none"> • Plans developed bottom-up • Iterative process | <ul style="list-style-type: none"> • Only financial metrics reported to top • BUs receive detailed operational data | <ul style="list-style-type: none"> • Forced ranking based on performance/values | <ul style="list-style-type: none"> • Clear consequences for under-delivery • Reward for strong delivery |
|--|--|---|--|---|

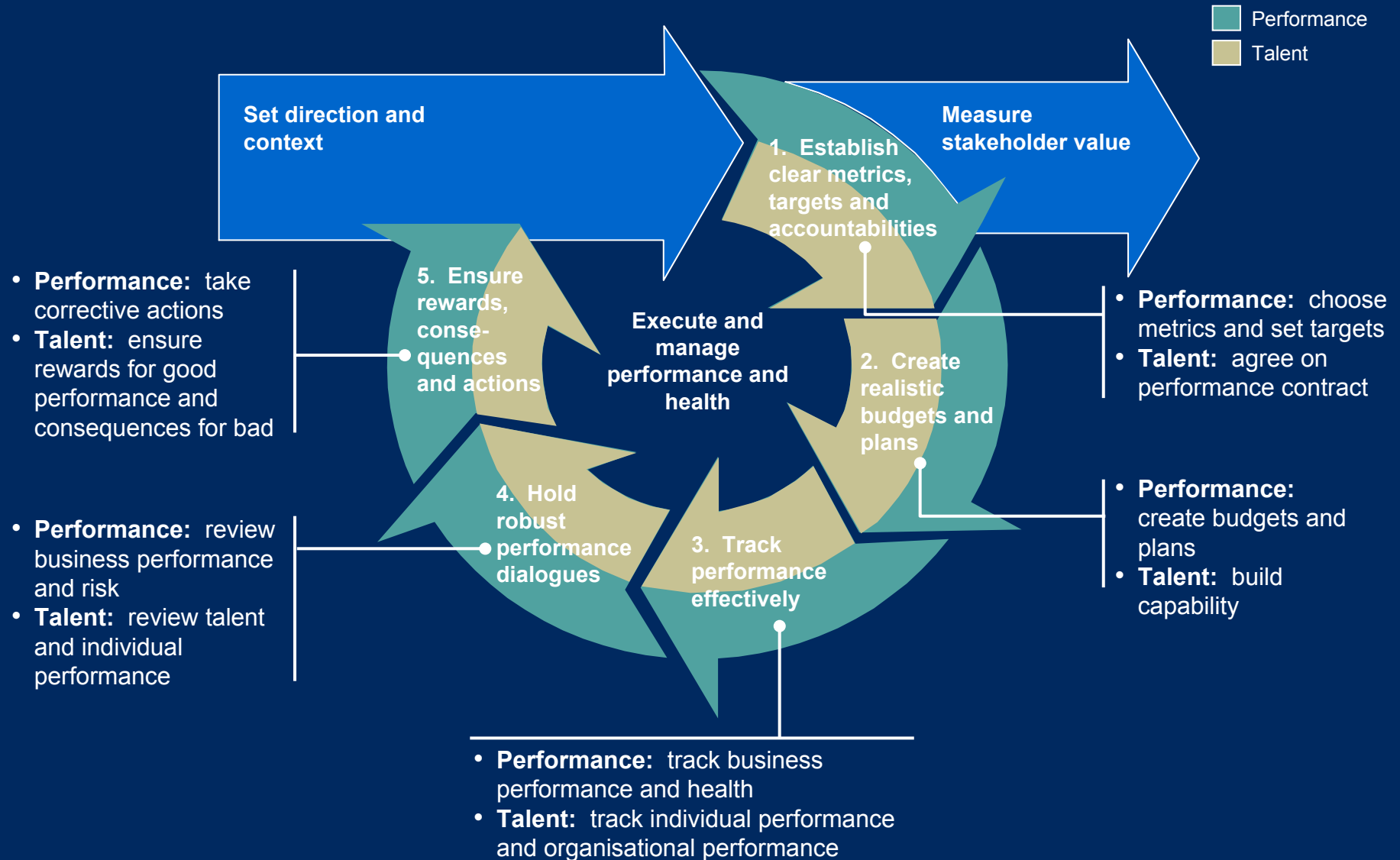


- | | | | | |
|--|--|---|--|--|
| <ul style="list-style-type: none"> • Challenging targets set top-down • Based on continuous improvement and 'business needs' | <ul style="list-style-type: none"> • Plans developed bottom-up • Iterative process | <ul style="list-style-type: none"> • Strong focus on operational metrics (cascading down org) • Data freely available | <ul style="list-style-type: none"> • Issues already identified and analyzed before hand • Coaching not telling • Limited intervention | <ul style="list-style-type: none"> • Clear link of performance to rewards |
|--|--|---|--|--|



- | | | | | |
|--|--|---|--|--|
| <ul style="list-style-type: none"> • Targets set top-down • Based on continuous improvement • Largely operational | <ul style="list-style-type: none"> • Led by center with involvement from Functions • 1-year/5-year plan combined | <ul style="list-style-type: none"> • Strong focus on operational metrics • Standardized MI systems • Bureaucracy | <ul style="list-style-type: none"> • Hard-edged dialogues focused on actuals (largely operational) • Individual rating/ranking | <ul style="list-style-type: none"> • Only top 5,500 eligible for bonus • Performance determines next year pay and jobs |
|--|--|---|--|--|

THERE ARE FIVE ELEMENTS OF A PERFORMANCE METRICS AND MANAGEMENT SYSTEM



1. THREE STEPS TO ESTABLISHING CLEAR METRICS, TARGETS, AND ACCOUNTABILITIES FOR ORGANIZATION



1 Develop a value tree to identify key drivers

2 Define high level metrics (dashboard) based on value drivers that meet three selection criteria– actionability, impact, measurability

3 Use high level metrics to define clear individual metrics, targets and accountabilities

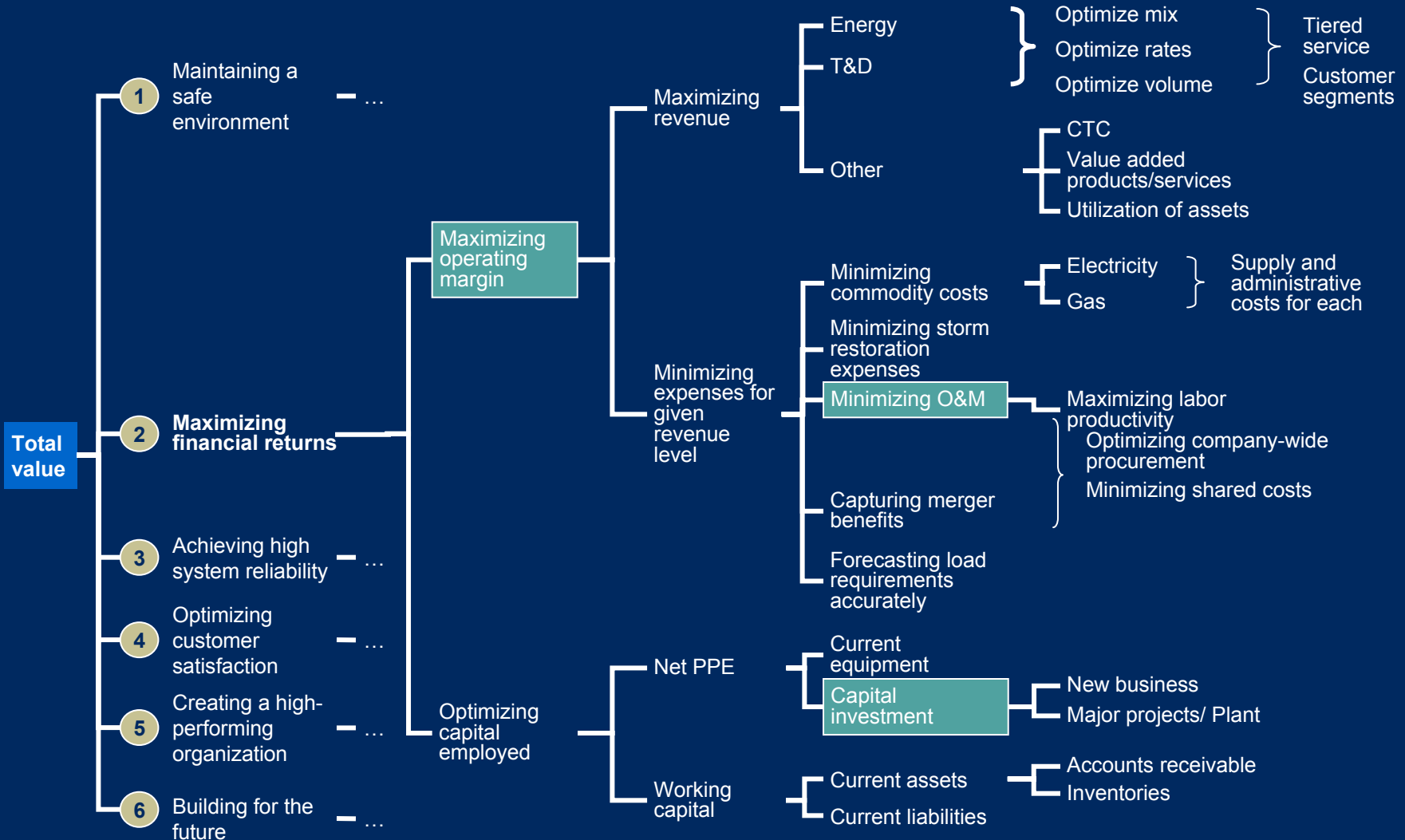
1A. DEVELOP A VALUE TREE TO IDENTIFY KEY DRIVERS



UTILITY COMPANY EXAMPLE

NOT EXHAUSTIVE

Key value driver Key value driver



1B. DEFINE HIGH LEVEL METRICS BASED ON VALUE DRIVERS THAT MEET THREE SELECTION CRITERIA



UTILITY COMPANY EXAMPLE

 Key value driver/KPI

		Selection criteria		
Value driver	Potential Metric	Actionability	Level of impact	Measureability
Current operating performance				
• Market opportunity cost	• \$ margin lost when in the money, but below requested generation	• High	• High	• High
• On-time delivery	• Success rate in meeting requested capacity	• High	• Low	• High
• Equivalent forced outages	• Partial or complete forced outage factor	• High	• Med	• Med
• Fuel cost (for each fuel)	• Fully loaded \$/MM BTU fuel cost in excess of market index	• High	• High	• High
• Heat rate	• BTU/NKWh	• High	• High	• High
• O&M	• \$	• High	• High	• High
• Capital additions	• \$	• High	• Med	• Med
• Inventories	• \$ carrying level	• High	• Low	• High
• Fixed capital	• \$ reduction in underutilized assets	• Med	• Low	• Med
• Environmental	• Number of notices of violation	• High	• Med	• High
• Safety	• Lost work day case rate	• High	• Med	• High
Business strengthening				
• Capital plan	• Success in meeting targets	• High	• High	• Med
• Develop strategic asset management plan	• Rigorous evaluation of quality of plan	• High	• Low	• Low
New growth opportunities				
• Support for acquisition process	• Rigorous "report card" assessing performance	• Med	• Med	• Med

1C. USE HIGH-LEVEL METRICS TO ESTABLISH CLEAR INDIVIDUAL METRICS, TARGETS, AND ACCOUNTABILITIES



ILLUSTRATIVE

1. Derive individual targets from business targets

2. Develop metrics and targets for overall business talent and capability

3. Support business targets with personal and team development objectives

4. Develop personal performance contracts that incorporate personal business targets

**Eastern Region
Marketing Performance Contract**

YOUR COMMITMENT	Bonus weighting Percent
Financial performance	
• Operating expenditure, <US \$17 million	20
• Capital expenditure, <US \$2 million	10
• EBIT >US \$5 million	25
Business objectives	
• Launch product pilots by 1Q'04	15
• Build product marketing infrastructure 2Q'04	15
Organization	
• Recruit 5 market analysts 1Q 04	5
• Train 50% of team on Siebel	5
• Establish team satisfaction survey	5
Personal	
• Demonstrate the firm's 6 key leadership skills	5
• Attend senior management training course	5
OUR COMMITMENT	
• Provide you with US\$17 million of operating expenditure	
• Provide you with US\$2 million of capital expenditure	
• Access to appropriate Firm resources	

Andrew of... *John Smith*

EXAMPLE: MISSOURI TRANSLATES GOALS INTO SPECIFIC AND MEASURABLE EXPECTATIONS FOR LEADERS OF UNITS



EXAMPLE

Tangible Results



- Uninterrupted Traffic Flow
- Smooth and Unrestricted Roads and Bridges
- Safe Transportation System
- Roadway Visibility
- Personal, Fast, Courteous and Understandable Response to Customer Requests (Inbound)
- Partner With Others to Deliver Transportation Services
- Leverage Transportation to Advance Economic Development
- Innovative Transportation Solutions
- Fast Projects That Are of Great Value
- Environmentally Responsible
- Efficient Movement of Goods
- Easily Accessible Modal Choices
- Customer Involvement in Transportation Decision-Making
- Convenient, Clean and Safe Roadside Accommodations
- Be
- A
- A
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TRACKER Table of Contents

Uninterrupted Traffic Flow – Don Hillis (Page 1)

Average speeds on selected roadway sections	Troy Pinkerton	1a
Average rate of travel on selected signalized routes	Julie Stotlemeyer	1b
Average time to clear traffic incident	Rick Bennett	1c
Average time to clear traffic backup from incident	Rick Bennett	1d
Number of customers assisted by the Motorist Assist program	Rick Bennett	1e
Percent of Motorist Assist customers who are satisfied with the service	Rick Bennett	1f
Percent of work zones meeting expectations for traffic flow	Scott Stotlemeyer	1g
Time to meet winter storm event performance objectives on major and minor highways	Tim Jackson	1h

Smooth and Unrestricted Roads and Bridges – Kevin Keith (Page 2)

Percent of major highways that are in good condition	Jay Bledsoe	2a
Percent of minor highways that are in good condition	Jay Bledsoe	2b
Percent of deficient bridges on major highways	Jay Bledsoe	2c
Percent of deficient bridges on minor highways	Jay Bledsoe	2d
Number of deficient bridges on the state system (major & minor highways)	Jay Bledsoe	2e

Safe Transportation System – Don Hillis (Page 3)

Number of fatalities and disabling injuries	Leanna Depue	3a
Number of impaired driver-related fatalities and disabling injuries	Leanna Depue	3b
Rate of annual fatalities and disabling injuries	Leanna Depue	3c
Percent of safety belt/passenger vehicle restraint use	Leanna Depue	3d
Number of bicycle and pedestrian fatalities and disabling injuries	Leanna Depue	3e
Number of motorcycle fatalities and disabling injuries	Leanna Depue	3f

- MoDOT provides specific metrics and individual responsibility for each goal

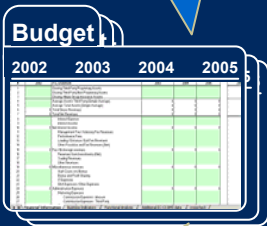
- Progress towards each goal is provided in published monthly “Tracker” reports

2. CREATE REALISTIC BUDGETS AND PLANS



Business: create budgets and plans

1. Develop standardized budgeting and planning mechanisms



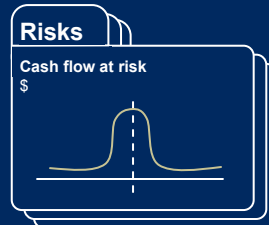
2. Determine action plans for the delivery of chosen targets



4. Translate into budget and allocate resources



3. Review risks and create plan to address



Targets

	Base	Stretch
EBIT	\$	\$
Cash		
Sales		

5. Combine budget, actions, and risks in a management plan

People: build capability

1. Identify people capabilities required to meet targets and plans



Capabilities

Skills: Cold-calling

People: Telesales operators x 5

2. Generate plan to bridge capability gap

- Internal sourcing
- External sourcing
- Training
- Personal development

3. Align individual capability building to performance contracts and plan

Performance Contract

Financial
Opex < \$17m
Capex < \$2m
EBIT > \$5m

4. Build individual capabilities

- Training
- Coaching
- Mentoring
- Feedback
- Job rotation

3. TRACK PERFORMANCE EFFECTIVELY

Performance: track business performance and health

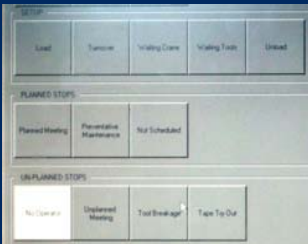


1. Develop and use efficient data collection processes

Automatic collection



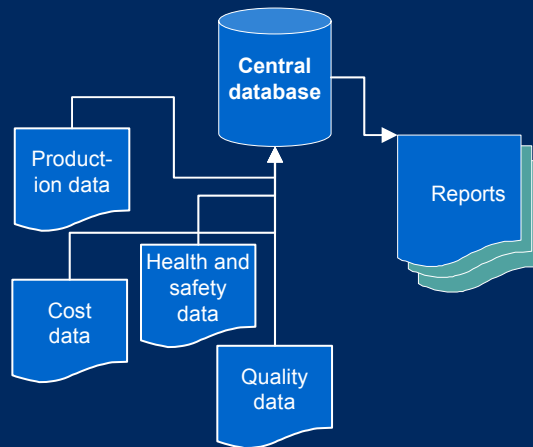
Semi-automatic collection



Manual collection

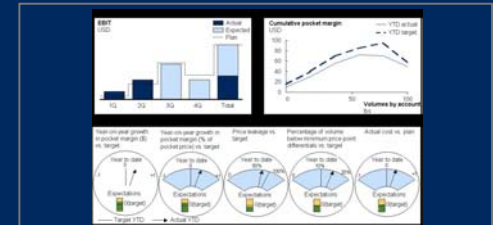
AREA	DATE	SHIFT	SUPERVISOR	REMARKS
NO.	PERIOD	TARGET	ACTUAL	CUMUL.
1	1:00 - 2:00	7.6	7.6	6.0
2	2:00 - 3:00	7.6	7.1	13.1
3	3:00 - 4:00	5.7	3.0	16.3
4	4:00 - 5:00	7.6	2.5	24.3
5	5:00 - 6:00	5.7	3.1	28.9
6	6:00 - 7:00	7.6	6.9	
7	7:00 - 8:00	3.6	5.5	
8	8:00 - 9:00	7.6	5.3	
9	9:00 - 10:00	3.6	5.0	

2. Develop a performance and health data storage and management solution

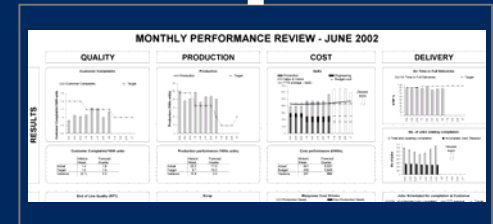


3. Report performance and health using a hierarchy of reports and scorecards

BU



Line



Shift



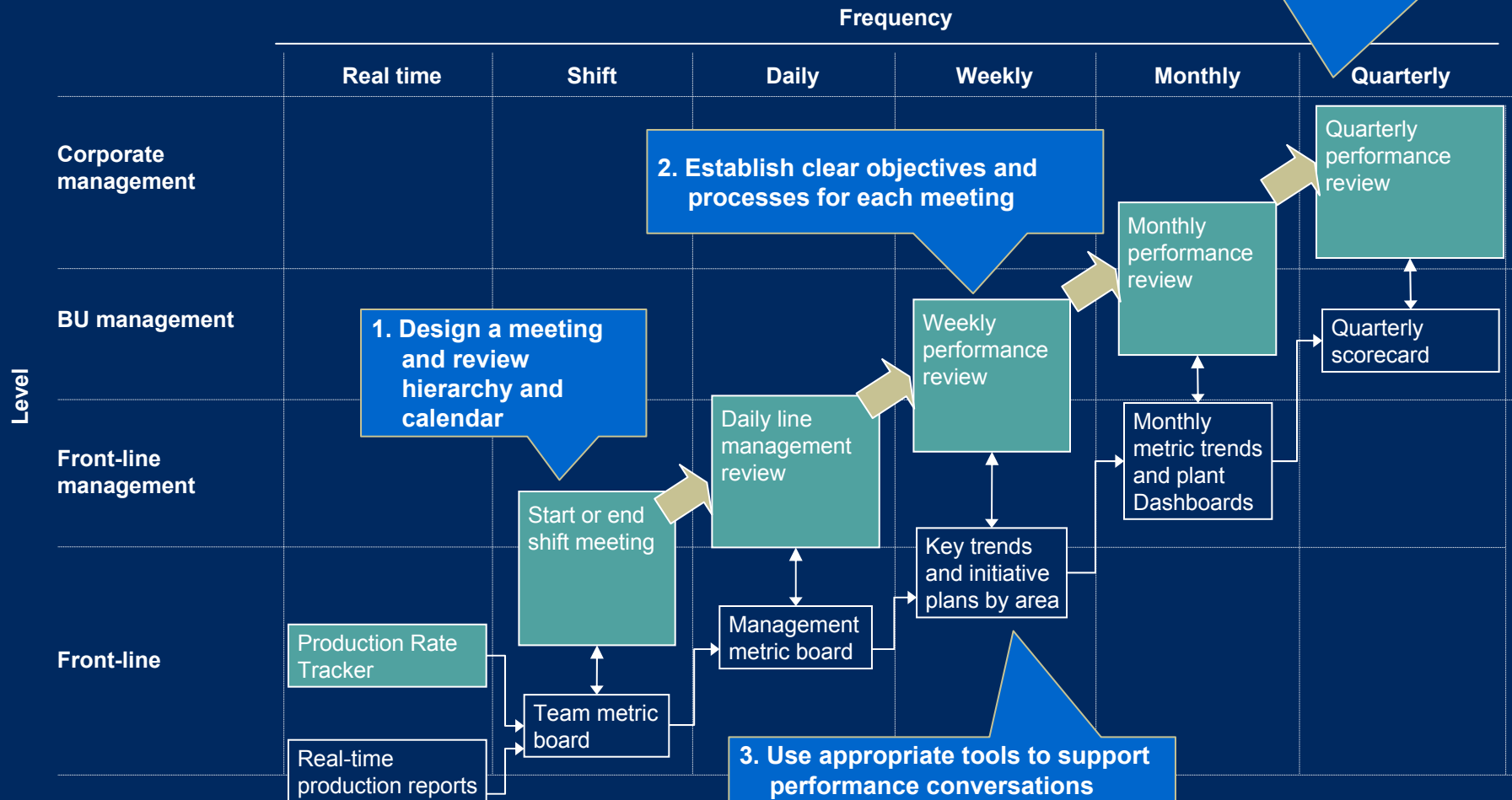
4. HOLD ROBUST PERFORMANCE DIALOGUES



Performance: review business performance and risk

- 4. Ensure the participants prepare thoroughly and display a constructive, problem solving attitude
- 5. Focus conversation on problem solving around key performance aspects, not 'spin'

Business review and report hierarchy



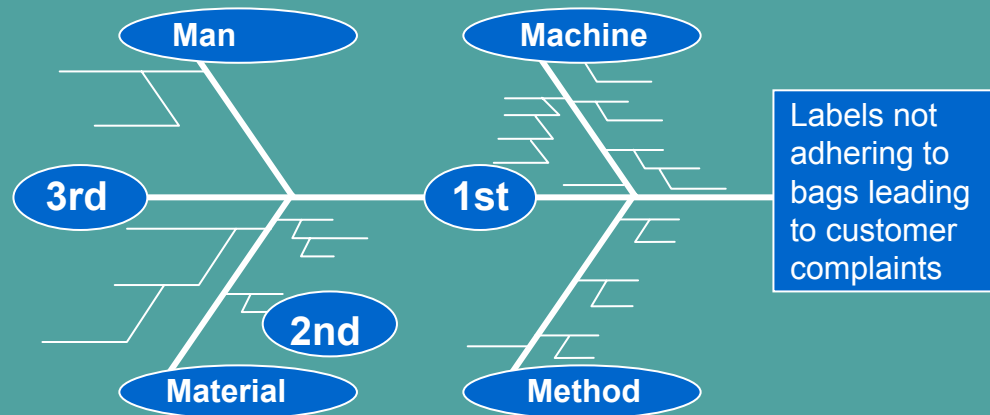
5. ENSURE REWARDS, CONSEQUENCES, AND ACTION



1. Understand root causes of current and future performance gaps

2. Prioritize areas for improvement

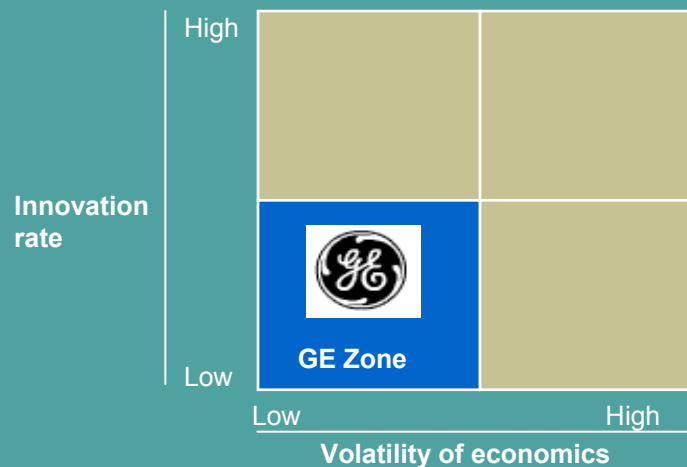
"Fishbone" diagram – manufacturing example



3. Generate solutions to address gaps and root causes

4. Develop plans to close gaps or reset targets

GE approach



- GE has divested a large number of businesses that lie outside its target zone and acquired many that lie inside
- GE asks each business “Can you become No. 1 or No. 2 in your business?” If yes, how are you going to do it? If not, how are you going to fix, close, or sell it?

TODAY'S WORKSHOP

Objectives

- Introduce best practice performance metrics and management concepts
- Review diagnostic findings about current NCDOT performance metrics and management
- Gain Executive Committee input on potential performance metrics for highest levels of organization

Schedule

- Performance metrics and management best practices (10 minutes)
- Diagnostic results in performance metrics and management (5 minutes)
- Ongoing TMT work on performance metrics and management (15 minutes)
- Executive Committee discussion of performance metrics for NCDOT (60 minutes)

PERFORMANCE METRICS ARE INSUFFICIENTLY INTEGRATED INTO NCDOT BUSINESS MANAGEMENT

- **There has been some implementation of performance management measures within business units, but those efforts are not explicitly linked to NCDOT nor other business unit priorities**
 - Only 36% of employees agree/strongly agree that “employees day-to-day behavior is guided by the NCDOT’s strategy.”
 - Only 44% of employees observe always/often that “operating measures are clearly defined in each area of the organization.”
- **NCDOT’s ad hoc nature of performance indicator generation sometimes led to conflicting needs between units**
 - Diagnostic found that different parts of organization have different levels of focus on metrics like cost, quality, and timing
 - Only 37% of employees observe always/often that “NCDOT holds challenging reviews to evaluate performance against the operational plan/key performance indicators.”

- **Increased accountability ranked among the top future characteristics that members of this group and other key leaders wanted to see at NCDOT**
 - *“People here have high professional standards and are accountable to their roles but rarely more.”*
 - *“No one sat me down and told me what I had to do, but I figured it out as I went.”*
 - *“I understand that with more autonomy comes more accountability, but I want that.”*

NCDOT HAS INTRODUCED OPERATIONAL METRICS IN SOME POCKETS OF THE ORGANIZATION

EXAMPLES

Initiative

Outcome

DOH

- Maintenance Management System
- Squad-level maintenance performance incentives
- STaRS information system

- More efficient use of resources through planning and scheduling
- Increased production from workforce, as compared to prior years' performance
- Preconstruction increasingly tracking statistics that can be used to develop metrics and targets

DMV

- Customer wait-time monitoring
- Operational improvement initiatives (e.g., reorganization of purchasing agents)
- Tracking of performance indicators (e.g., number of school bus drivers trained)

- Quantitative statistics used to track and resolve bottlenecks in DMV customer experience
- Significant financial and efficiency gains in core processes (scale economies in purchasing)
- Observations of DMV functions provide business intelligence on economic trends (recognition of a retention problem with NC school bus drivers)

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BEFORE PERFORMANCE METRICS CAN BE DEVELOPED, THE MAJOR DRIVERS OF VALUE FOR NCDOT MUST BE DETERMINED...

PRELIMINARY



- The intention of this preliminary value tree is to provide a starting point for interviews with NCDOT Business Unit heads
- The ultimate goal is to improve upon the tree over time and have it serve as the foundation for developing NCDOT's performance metrics and high-level dashboard

WHAT ARE PERFORMANCE DASHBOARDS AND WHY ARE THEY USED?

What is a performance dashboard?

- A performance dashboard is a visual representation of the overall health of an organization*

How is a performance dashboard developed and readied for use?

- Build a value tree to determine key drivers of value for organization
- Develop high-level organization-wide metrics from the identified value drivers
- Establish targets for the high-level metrics
- Develop metrics and associated targets for divisions, branches, and units

Why use a performance dashboard?

Dashboards allow organizations to:

- Monitor critical business processes and activities using metrics of business performance that trigger alerts when potential problems arise*
- Analyze the root cause of problems by exploring relevant and timely information from multiple perspectives and at various levels of detail*
- Manage people and processes to improve decisions, optimize performance and steer the organization in the right direction*

NCDOT'S EXECUTIVE DASHBOARD PROVIDES A MEANS FOR GAUGING OVERALL ORGANIZATIONAL PERFORMANCE

PRELIMINARY

DRAFT

	Metrics	Comments
"Make our transportation network safer"	<ul style="list-style-type: none"> Fatal accident (incident) rates on NCDOT transportation network 	<ul style="list-style-type: none"> "Hard" numerical data for measuring performance of systems -i.e. various transit modes, safety operating procedures for employees Most state DOTs track traffic fatalities Fatalities per 100 million vehicle miles traveled - National goal is 1.0, We are currently at ~1.58. What does this mean in actual numbers ?
"Make our transportation network move people and goods more efficiently"	<ul style="list-style-type: none"> Travel time Congestion (level of service) 	<ul style="list-style-type: none"> Indicator of system performance - actual vs. ideal travel time on transportation system Use average speed (operating) on representative sample sites for different tiers Ratings exists for reporting. Can compare NC vs. National congestion and then set goals On representative sample sites, determine when the peak congestion time is and how long it lasts
"Make our infrastructure last longer"	<ul style="list-style-type: none"> Existing system conditions <ul style="list-style-type: none"> Road Bridge Other Book value of transportation network 	<ul style="list-style-type: none"> Infrastructure currently being measured by Operations Provides a view of how maintenance activities and new construction affect the value of the network over time
"Make our organization a place that works well"	<ul style="list-style-type: none"> Delivery on schedule Delivery on budget 	<ul style="list-style-type: none"> Ideal metric for future measure is "% of projects, programs, and services completed on schedule and on budget for a given year", but it would require coordination between NCDOT divisions/departments Current measures are highways-focused, but should serve as guides for what could be tracked for alternative modes
"Make our organization a great place to work"	<ul style="list-style-type: none"> Employee satisfaction index Employee safety incidents 	<ul style="list-style-type: none"> Employee satisfaction can be gauged based on survey results. Easily tracked and shows trends. Currently being measured Department-wide and shows we care about the employees

NEXT STEPS FOR THE TMT PERFORMANCE METRICS AND MANAGEMENT TEAM

PRELIMINARY

- Follow up meetings with Executive Committee members to discuss potential metrics for different branches and divisions
- Follow up meetings with Executive Committee members and unit heads to discuss potential unit level metrics
- Data collection for baselines on unit-level and higher metrics
- Presentation of metrics for unit-level and higher to Leadership Team
- Presentation of metrics for unit-level and higher to Leadership Team
- Training sessions on Performance Metrics and Management
- Cascading of metrics from unit heads throughout organization
- Target setting
- Early- to Mid-August
- Mid-August to Mid-September
- Mid-September to Mid-October
- Mid-September
- Mid-September
- November
- December-January
- January-February

TODAY'S WORKSHOP

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PERFORMANCE METRICS AND MANAGEMENT DISCUSSION

- 1 (15 minutes) Using the template, write down possible division, branch, and unit metrics for your group. Include both “real” and “ideal” metrics. This is a discussion starter only
- 2 (30 minutes) Form groups with others from your part of the organization (see next slide).

Discuss the metrics you wrote down and

- Develop a proposed set(s) of metrics for your group(s)
- Identify the key challenges or issues that made it challenging to select this set of metrics

- 3 (15 minutes) Present back to the group and debrief on the following:
 - Issues that arose during the exercise
 - Particular challenges in creating metrics
 - Key success factors for making this successful at NCDOT

PERFORMANCE METRICS AND MANAGEMENT DISCUSSION BREAK-OUT GROUPS

GROUP 1

- Barry Moose
- Lacy Love
- Jon Nance
- Bob Andrews
- Lori Kroll
- John Sullivan

GROUP 3

- Pat Simmons
- Bill Williams
- Hope McLamb
- Miriam Perry
- Jack Cahoon

GROUP 2

- Debbie Barbour
- Kevin Lacy
- Mike Bruff
- Jay Bennett
- Art McMillan
- Greg Thorpe

GROUP 4

- Herb Henderson
- Julie Hunkins
- Mark Paxton
- Willie Riddick
- Calvin Leggett

NCDOT DIVISION/BRANCH/UNIT LEVEL DASHBOARD

DIVISION/BRANCH/UNIT: _____

Remember:

- Metrics should be actionable, high impact and measurable
- These metrics offer a starting point for further discussions

	Ideal metrics	Best currently available metrics	Rationale/ Comments
“Make our transportation network safer”	<ul style="list-style-type: none"> • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____
“Make our transportation network move people and goods more efficiently”	<ul style="list-style-type: none"> • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____
“Make our infrastructure last longer”	<ul style="list-style-type: none"> • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____
“Make our organization a place that works well”	<ul style="list-style-type: none"> • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____
“Make our organization a great place to work”	<ul style="list-style-type: none"> • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____

SCORECARDS CAN BE USED TO TRACK PERFORMANCE AGAINST THE METRICS

1. Derive overall metrics from key drivers of stakeholder value

2. Balance performance metrics to measure beyond financial performance

Performance Metrics	Current period					Year-to-date				
	Actual	Contract	Stretch	Variance	Status	Actual	Contract	Stretch	Variance	Status
Employee										
• Yield rate for experienced hires										
• Employee commitment index										
Financial										
• Gross operating margin										
• Total O&M										
• GenCo EBIT										
Operational										
• Integration of trade floor										
• Distribution company supply reliability										
Customers										
• Number of new wholesale customers										
• Total sales volume										

3. Establish targets for each metric – offer base/contract and stretch

- Establish metrics and targets for overall company and each BU, and then cascade the metrics and targets to lower levels
- Establish scorecards for each BU and group/business/performance unit

SPECIFIC TARGETS SHOULD BE ESTABLISHED FOR EACH METRIC



EXAMPLE

Metric	Weighting %	Target/Standard				
		Unsatisfactory (1)	Needs improvement (2)	Meets expectations (3)	Exceeds expectations (4)	Exceptional (5)

Meeting expectations is consistent with BU plan

Profitable growth

• Revenue	40	<\$900m	\$900m	\$1,053m	\$1,200m	<\$1,400m
• Market share	15	<14%	14%	15.0%	16%	>17%
• Expenses	10	<\$135m	\$135m	\$150 m	\$165m	>\$180m

Customer service

• Customer satisfaction	15	8.4	8.7	9.0	9.3	>9.5
• Customer perception score	5	<6.5	6.5	7.0		

People/ Performance culture

• Employee survey	2.5	71st percentile	75th percentile	79th percentile	82nd percentile	85th percentile
• Retention metric	2.5	8%	12%	16%	20%	24%
• Recruitment ratio	5	<0.9	0.9	1.50	1.90	<2.3

Efficiency

• Project X	15	Less than 80% of milestones met on time	Over 80% of milestones met on time in full. All milestones >50% complete	Project milestones & outcomes met on time and in full	Project milestones delivered in full ahead of time. Outcomes exceed	Project delivered well ahead of time. Significantly exceeds forecast outcomes within original budget
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Clear descriptions of standards expected for qualitative metrics

Targets set for each of the 5 performance standards

THERE ARE MULTIPLE SOURCES OF INPUTS TO SETTING TARGETS



ILLUSTRATIVE

Level of difficulty achieving

There are some differences across departments in terms of how difficult it is to achieve LWDC

Employee input

"I think a fair target for my LWDC is 1.2."

Supervisor input

"We should aim to have LWDC at 0.9."

Target calibration

Supervisor 1 "Average LWDC for my department was 1.0 over past 5 years."

Supervisor 2 "My average LWDC was 1.1."

Supervisor 3 ...
.
.
.

My targets		
	Base	Stretch*
Cost/kg	\$3.20	\$2.95
LWDC	1.0	0.7
Operating income	\$5 million	\$5.8 million

External benchmarks

Most other companies average 0.8 on LWDC

Comparison with coworkers/peers

Others inks businesses average 1.0 on LWDC

Historical data on individual performance

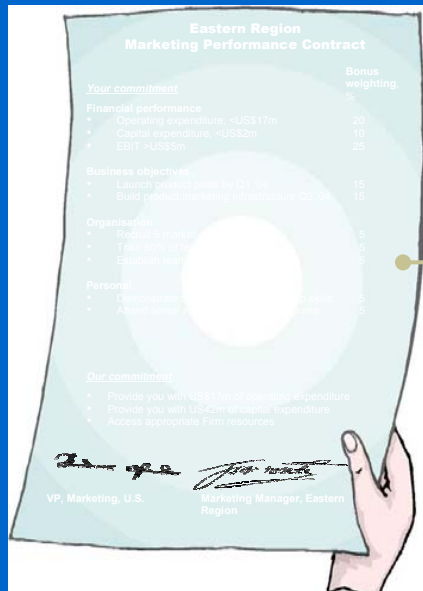
Employee has held LWDC at 1.5 over last 3 years."

In all cases the employee and manager must work together to set the preliminary targets for the milestones and goals. Targets are then finalized by the supervisor using input from the target calibration process

3. TRACK PERFORMANCE EFFECTIVELY

Talent: track individual performance and organization capability

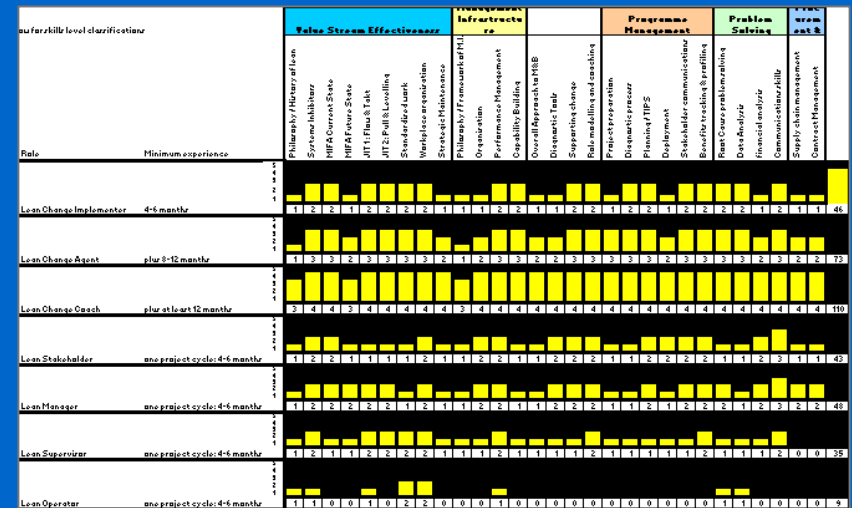
1. Use a relevant suite of devices to track individual performance



- Performance results
- 360° feedback, leader input, peer reviews
- Employee surveys
- Self appraisal

2. Design and use a mechanism to track the evolution of capabilities for each organizational unit

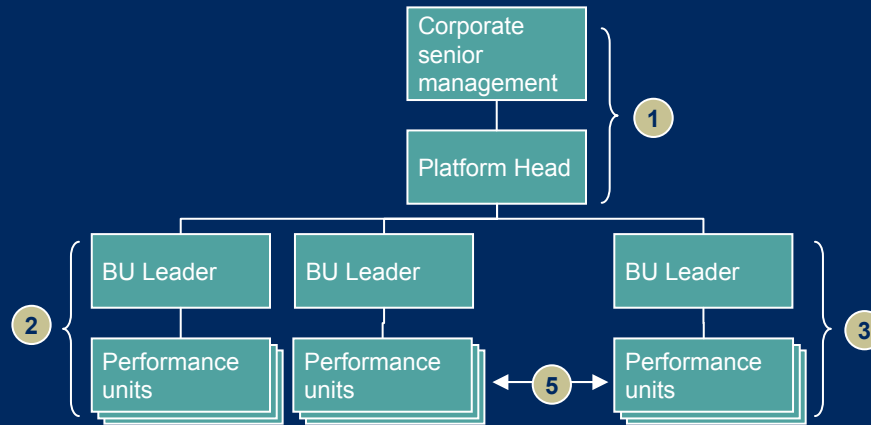
Lean manufacturing skills tracking example



BUSINESS REVIEW PROCESS OVERVIEW



EXAMPLE



Review	Participants	Frequency	Subject matter
1 Corporate Quarterly Management Meeting	Corporate senior management	Quarterly	<ul style="list-style-type: none"> Platform metrics, BU performance indicators*
2 BU #1	Platform head, top 4 BU Leaders, 5-10 key performance unit leaders	Monthly	<ul style="list-style-type: none"> BU #1 performance indicators and supporting indicators Deep dive on 1-2 performance unit performance indicators and supporting indicators BU #1 P&L review
3 BU #2	Platform head, BU head, business directors	Monthly	<ul style="list-style-type: none"> BU #2 performance indicators and supporting indicators Deep dive on 1-2 performance unit performance indicators and supporting indicators BU #2 P&L review
4 Lower level	Business Directors, VPs, managers and others, as appropriate	Daily, weekly, monthly, as needed	<ul style="list-style-type: none"> Business-director-level, performance unit or sub-unit (e.g., a region) performance indicators and supporting indicators
5 BU Cross-performance unit	Leaders of similar performance units at BU #1 and BU #2 (e.g., call center unit leaders from each)	Once or twice per year	<ul style="list-style-type: none"> Performance indicators and supporting indicators for similar functional units

* Corporate senior management also would discuss metrics for other platforms

NCDOT'S EXECUTIVE DASHBOARD PROVIDES A MEANS FOR GAUGING OVERALL ORGANIZATIONAL PERFORMANCE

DRAFT

METRICS

"Make our transportation network safer"

- Fatal accident (incident) rates on NCDOT transportation network

"Make our transportation network move people and goods more efficiently"

- Travel time (avg. operating speed)
- Travel time reliability
- Congestion (level of service)

"Make our infrastructure last longer"

- Existing system conditions
 - Road
 - Bridge
 - Other
- Book value of transportation network

"Make our organization a place that works well"

- Delivery on schedule
- Delivery on budget
- *Deliverable's standard of quality (???)*
- *Environmental compliance (???)*

"Make our organization a great place to work"*

- Employee satisfaction index
- Employee safety incidents

* Most state DOTs do not track metrics related to this goal on their executive dashboards

“MAKE OUR TRANSPORTATION NETWORK SAFER”

Metrics	Comments
<ul style="list-style-type: none">• Fatal accident (incident) rates on NCDOT transportation network	<ul style="list-style-type: none">• “Hard” numerical data for measuring performance of systems -i.e. various transit modes, safety operating procedures for employees• Most state DOTs track traffic fatalities• Fatalities per 100 million vehicle miles traveled - National goal is 1.0, We are currently at ~1.58. What does this mean in actual numbers ?

“MAKE OUR TRANSPORTATION NETWORK MOVE PEOPLE AND GOODS MORE EFFICIENTLY”

Metrics	Comments
<ul style="list-style-type: none">• Travel time reliability	<ul style="list-style-type: none">• Indicator of system performance - actual vs. ideal travel time on transportation system• Use average speed (operating) on representative sample sites for different tiers
<ul style="list-style-type: none">• Congestion (level of service)	<ul style="list-style-type: none">• Ratings exists for reporting. Compare NC vs. national congestion and then set goals• On representative sample sites, determine when the peak congestion time is and how long it lasts.

“MAKE OUR INFRASTRUCTURE LAST LONGER”

Metrics	Comments
<ul style="list-style-type: none">• Existing system conditions<ul style="list-style-type: none">– Road– Bridge– Other• Book value of transportation network	<ul style="list-style-type: none">• Infrastructure currently being measured by Operations• Provides a view of how maintenance activities and new construction affect the overall value of the network over time

“MAKE OUR ORGANIZATION A PLACE THAT WORKS WELL”

Metrics	Comments
<ul style="list-style-type: none"> • Delivery on schedule • Delivery on budget • <i>Deliverable's standard of quality (???)</i> • <i>Environmental compliance (???)</i> 	<ul style="list-style-type: none"> • Measurements in place • Measurements in place • Important to provide quality • Measurements in place

“MAKE OUR ORGANIZATION A GREAT PLACE TO WORK”*

Metrics	Comments
<ul style="list-style-type: none">• Employee satisfaction index	<ul style="list-style-type: none">• Employee satisfaction can be gauged based on survey results. Easily tracked and shows trends. Employee survey needs to be strategically conducted same time every year for consistency.
<ul style="list-style-type: none">• Employee safety incidents	<ul style="list-style-type: none">• Currently being measured Department-wide and shows we care about the employees

MORE SPECIFICALLY, THE DASHBOARD METRICS WILL MEASURE QUANTITATIVE DATA THAT CAN BE LINKED TO PERFORMANCE (1/4)

Dashboard metric	Definition of measure	Source of data	Comments
Fatal accident rates on NCDOT transportation network	<ul style="list-style-type: none"> Number of fatal accidents on the NCDOT transportation system per 100 million miles traveled 	<ul style="list-style-type: none"> Traffic Engineering & Safety Systems 	<ul style="list-style-type: none"> Federal standards exist for highways Allows for direct comparisons to other states
Travel time	<ul style="list-style-type: none"> Avg. operating speed per mile Frequency of service for buses, ferries, etc 	<ul style="list-style-type: none"> Traffic Engineering & Safety Systems Asset Management 	<ul style="list-style-type: none"> Intended to gauge the effectiveness of travel on the transportation system
Congestion	<ul style="list-style-type: none"> Level of Service experienced at peak travel times 	<ul style="list-style-type: none"> Traffic Engineering & Safety Systems Asset Management 	<ul style="list-style-type: none"> Based on NCHRP guidelines and/or sensor read-outs Intended to gauge ability to handle load on the system How should alternative modes be handled? Need to perform mapping of levels of service to numerical values
Existing system conditions	<ul style="list-style-type: none"> Numerical indicator of level of service for roads Bridge sufficiency ratings 	<ul style="list-style-type: none"> Asset Management 	<ul style="list-style-type: none"> Need to incorporate ratings for non-core portions of system Is there a way to use some sort of blended metric? Need to perform mapping of levels of service to numerical values

MORE SPECIFICALLY, THE DASHBOARD METRICS WILL MEASURE QUANTITATIVE DATA THAT CAN BE LINKED TO PERFORMANCE (2/4)

DRAFT

Dashboard metric	Definition of measure	Source of data	Comments
Book value of transportation network	<ul style="list-style-type: none"> Dollar value of assets in the NCDOT transportation network 	<ul style="list-style-type: none"> NCDOT Fiscal 	
Delivery on schedule	<ul style="list-style-type: none"> % of projects constructed on schedule in a given year <ul style="list-style-type: none"> – Calculated as [Projects completed by scheduled date] divided by [Total projects scheduled to be completed] % of projects let on schedule in a given year <ul style="list-style-type: none"> – Calculated as [Projects let by scheduled date] divided by [Total projects scheduled to be let] 	<ul style="list-style-type: none"> PMii (a.k.a. STaRS) HiCAMS 	<ul style="list-style-type: none"> Ideal metric for future measure is “% of projects, programs, and services completed on schedule for a given year”, but it would require coordination between NCDOT divisions/departments Current measures are highways-focused, but should serve as guides for what could be tracked for alternative modes
Employee safety incidents	<ul style="list-style-type: none"> Number of safety incidents involving NCDOT staff while on duty 	<ul style="list-style-type: none"> Safety and Loss Control 	<ul style="list-style-type: none"> The given measure is only preliminary, pending a discussion with Bob Andrews about what data he tracks about employee safety incidents

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MORE SPECIFICALLY, THE DASHBOARD METRICS WILL MEASURE QUANTITATIVE DATA THAT CAN BE LINKED TO PERFORMANCE (3/4)

Dashboard metric	Definition of measure	Source of data	Comments
Delivery on budget	<ul style="list-style-type: none"> • % of projects completed on budget in a given year <ul style="list-style-type: none"> – Calculated as [Projects completed on budget] divided by [Total projects completed] • % of projects let on budget in a given year <ul style="list-style-type: none"> – Calculated as [Projects let on budget] divided by [Total projects scheduled to be let] 	<ul style="list-style-type: none"> • PMii (a.k.a. STaRS) • HiCAMS 	<ul style="list-style-type: none"> • Ideal metric for future measure is “% of projects, programs, and services completed on budget for a given year” , but it would require coordination between NCDOT divisions/departments • Current measures are highways-focused, but should serve as guides for what could be tracked for alternative modes
Employee satisfaction index	<ul style="list-style-type: none"> • Numerical index of employee satisfaction, as determined by survey results 	<ul style="list-style-type: none"> • NCDOT employee survey (to be developed and issued later) 	<ul style="list-style-type: none"> • Employee satisfaction can be gauged based on survey results. Easily tracked and shows trends. Employee survey needs to be strategically conducted same time every year for consistency. • Survey questions must be general enough to include all DOT employees, but specific enough to provide productive insights.

DRAFT

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MORE SPECIFICALLY, THE DASHBOARD METRICS WILL MEASURE QUANTITATIVE DATA THAT CAN BE LINKED TO PERFORMANCE (4/4)

Dashboard metric	Definition/Mean of measurement	Open questions	DRAFT
<i>Deliverable's standard of quality ??</i>	<ul style="list-style-type: none"> • <i>TBD</i> 	<ul style="list-style-type: none"> • <i>How are we currently measuring quality?</i> • <i>Do we need to develop quality measure?</i> • <i>Concentrate on a certain part of NCDOT?</i> 	
<i>Environmental Compliance ??</i>	<ul style="list-style-type: none"> • <i>Number of Immediate Corrective Actions (ICAs) issued for construction projects in a given period</i> 	<ul style="list-style-type: none"> • <i>Does this metric need to be on the high-level dashboard?</i> • <i>Are ICAs the correct measure for this metric?</i> • <i>Confined to the construction phase only?</i> • <i>Consider compliance violations from other agencies?</i> 	

HOW TO INCORPORATE RETURN ON INVESTMENT?

		Metric	ROI relevant?	
Return on Investment	Outcomes/Goals	“Make our transportation network safer”	<ul style="list-style-type: none">• # of fatal accidents per 100 Million Vehicle Miles Traveled	<ul style="list-style-type: none">• Yes
		“Make our transportation network move people and goods more efficiently”	<ul style="list-style-type: none">• Average operating speed per mile• Congestion (Level of Service)• Frequency of service for transit	<ul style="list-style-type: none">• Yes• Yes• Yes
		“Make our transportation network last longer”	<ul style="list-style-type: none">• Numerical indicator of level of service for roads• Dollar value of assets in transportation network	<ul style="list-style-type: none">• Yes• Yes or N/A
		“Make our organization a place that works well”	<ul style="list-style-type: none">• % of projects constructed on schedule/year• % of projects let on schedule/year• % of let on budget/year• Deliverable quality	<ul style="list-style-type: none">• Maybe• Maybe• Maybe• Yes
		“Make our organization a great place to work”	<ul style="list-style-type: none">• Number of employee safety incidents• Employee satisfaction scores	<ul style="list-style-type: none">• Yes• Yes
	Dollars invested			

Return On Investment can be treated as:

- Portfolio of all outcomes achieved given total

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Return On Investment can be treated as:

- Portfolio of all outcomes achieved given total dollars invested
- Achievement on specific outcomes given dollars invested directly toward those outcomes

DIRECTOR OF FIELD OPERATIONS

DRAFT


	Metrics	Definition of measure/Comments
“Make our transportation network safer”	<ul style="list-style-type: none"> Implementation of Work Zone Safety Program statewide Improve Statewide Level of Service of Safety Features 	<ul style="list-style-type: none"> # of issues identified per Work Zone Safety Audit reports statewide Avg level of service (A-F) on MCAP items related to safety such as shoulder drop-offs, guardrail, sight distance, brush & tree control, clogged drains (spread), etc.
“Make our transportation network move people and goods more efficiently”	<ul style="list-style-type: none"> Enhance mobility on Strategic Highway Corridor Maintain operational efficiency on traffic control devices statewide Institute information sharing systems that reduce congestion and efficiently manage incidents statewide Access mgmt throughout the state 	<ul style="list-style-type: none"> Average operating speed on portions of Strategic Highway Corridor Travel time reliability- standard deviation of avg. commuter time in selected urban areas; Avg. # of minutes from incident to all lanes open Avg. # of minutes from incident to TIMS data input Number of driveway permits issued in compliance with Policy on Street & Driveway Access Policy
“Make our infrastructure last longer”	<ul style="list-style-type: none"> Level of service of state-wide infrastructure Quality assurance and control during construction 	<ul style="list-style-type: none"> Level of service (A-F) of state-wide infrastructure <ul style="list-style-type: none"> Maintenance Condition Survey score Bridge Condition Survey Score Pavement Condition Survey Score MCAP Construction Quality Index
“Make our organization a place that works well”	<ul style="list-style-type: none"> Projects managed,administered, and constructed on schedule and on budget Pave roads efficiently HUB/SBE/WBE/MBE/DBE participation/opps Stakeholder interaction 	<ul style="list-style-type: none"> % of projects managed/administered by Divisions constructed on schedule and on budget % of DDL projects (& other programs) let on schedule and on budget Miles paved per dollar spent on paving % of solicitations sent to DBEs, etc. % of bids received from DBEs, etc. % of contract dollars awarded to DBEs, etc. Customer survey scores (public, partners, etc.)
“Make our organization a great place to work”	<ul style="list-style-type: none"> Employee Safety Employee Satisfaction Recruiting, developing and retaining employees 	<ul style="list-style-type: none"> Number of incidents, lost work days, worker’s comp claims Employee satisfaction survey composite score % vacancy rate

DIVISION ENGINEERS

DRAFT

	Metrics	Definition of measure/Comments
“Make our transportation network safer”	<ul style="list-style-type: none"> Implementation of Division Work Zone Safety Program Improve Level of Service of Safety Features throughout Division 	<ul style="list-style-type: none"> # of issues identified per Work Zone Safety Audit report Avg level of service (A-F) on MCAP items related to safety such as shoulder drop-offs, guardrail, sight distance, brush & tree control, clogged drains (spread), etc.
“Make our transportation network move people and goods more efficiently”	<ul style="list-style-type: none"> Enhance mobility on Strategic Highway Corridor Maintain operational efficiency on traffic control devices throughout Division, institute information sharing systems that reduce congestion and efficiently manage incidents throughout Division Access mgmt throughout the Division 	<ul style="list-style-type: none"> Average operating speed on portions of Strategic Highway Corridor that run through Division Travel time reliability- standard deviation of avg. commuter time in selected urban areas; Avg. # of minutes from incident to all lanes open; Avg. # of minutes from incident to TIMS data input Number of driveway permits issued in compliance with Policy on Street & Driveway Access Policy
“Make our infrastructure last longer”	<ul style="list-style-type: none"> Level of service of Division-wide infrastructure Quality assurance and control during construction 	<ul style="list-style-type: none"> Level of service (A-F) of Division-wide infrastructure <ul style="list-style-type: none"> Maintenance Condition Survey score Bridge Condition Survey Score Pavement Condition Survey Score MCAP Construction Quality Index
“Make our organization a place that works well”	<ul style="list-style-type: none"> Projects managed,administered, and constructed on schedule and on budget Pave roads efficiently HUB/SBE/WBE/MBE/DBE participation/opps Stakeholder interaction 	<ul style="list-style-type: none"> % of projects managed/administered by Divisions constructed on schedule and on budget % of DDL projects (& other programs) let on schedule and on budget Miles paved per dollar spent on paving % of solicitations sent to DBEs, etc. % of bids received from DBEs, etc. % of contract dollars awarded to DBEs, etc. Customer survey scores (public, partners, etc.)
“Make our organization a great place to work”	<ul style="list-style-type: none"> Employee Safety Employee Satisfaction Recruiting, developing and retaining employees 	<ul style="list-style-type: none"> Number of incidents, lost work days, worker’s comp claims Employee satisfaction survey composite score % vacancy rate

Location: http://www.ncdot.org/



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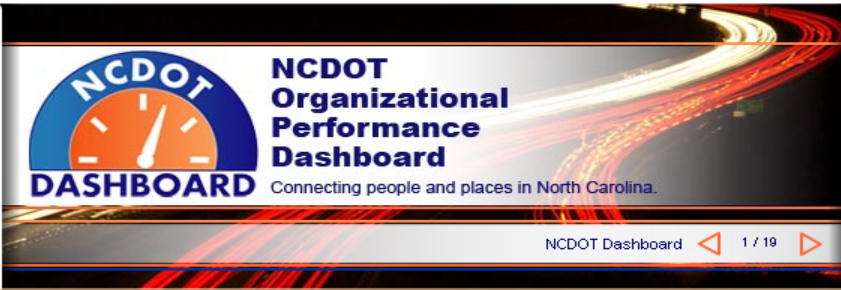
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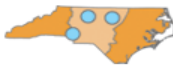
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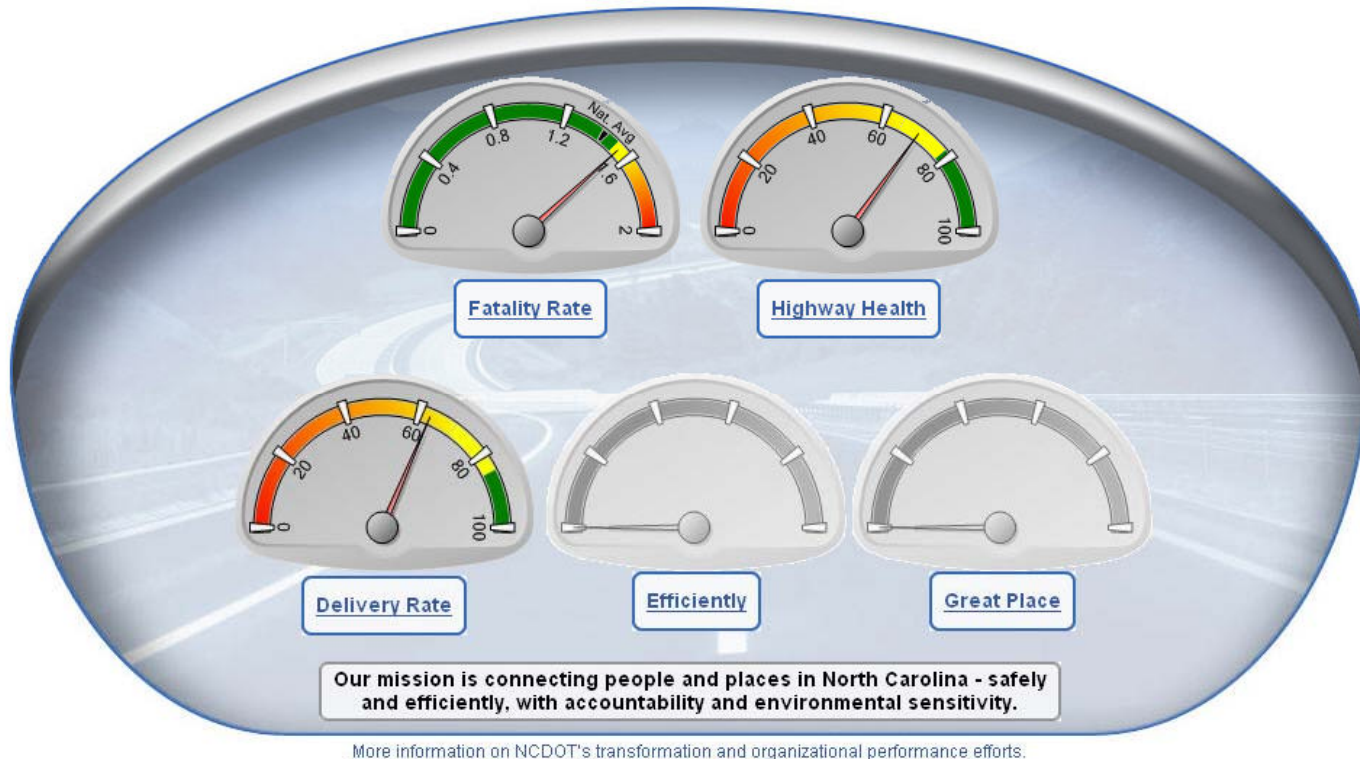
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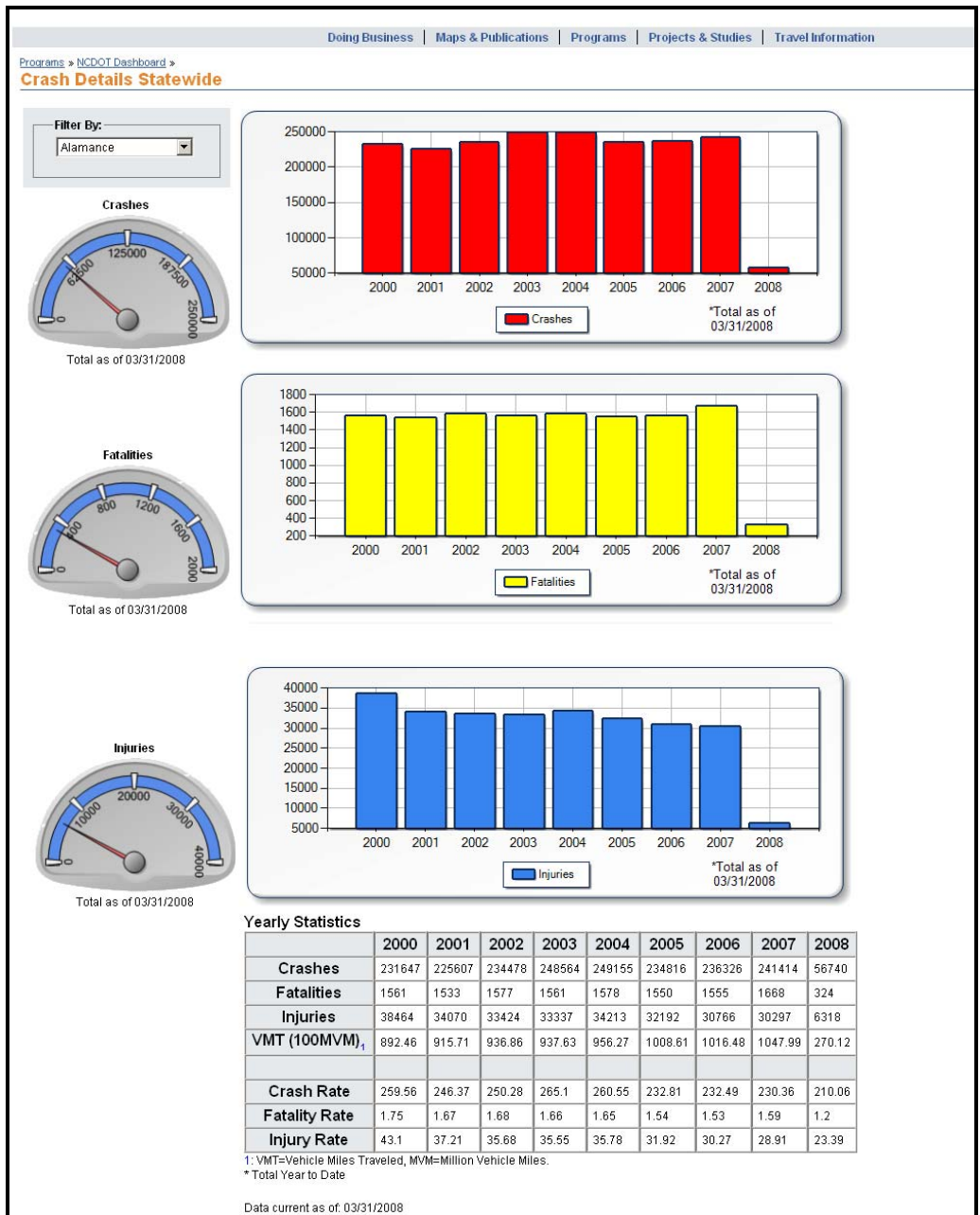
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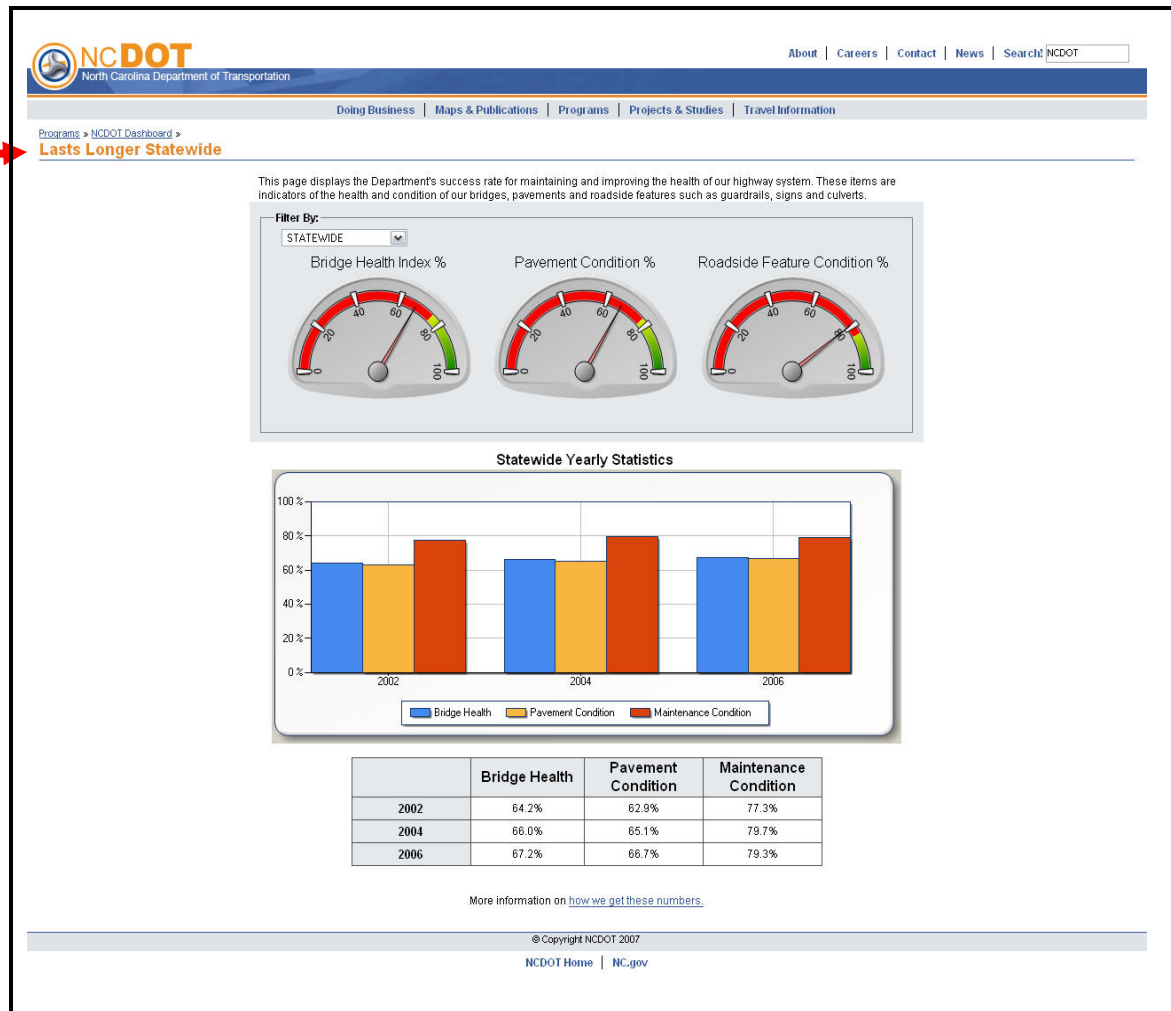
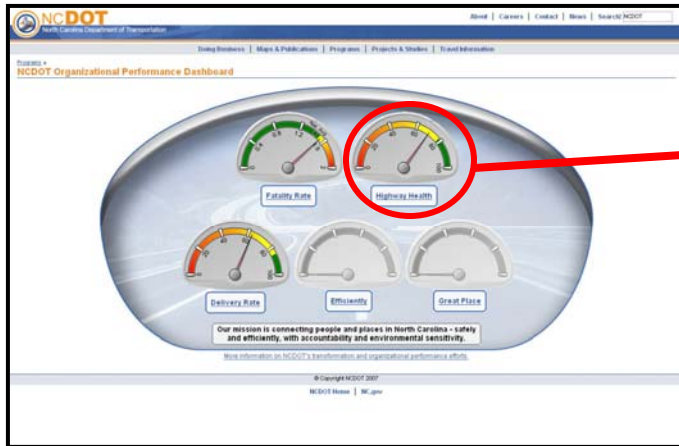
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Make Our Transportation Network - "Safer" Fatality Gauge - Crash Rates



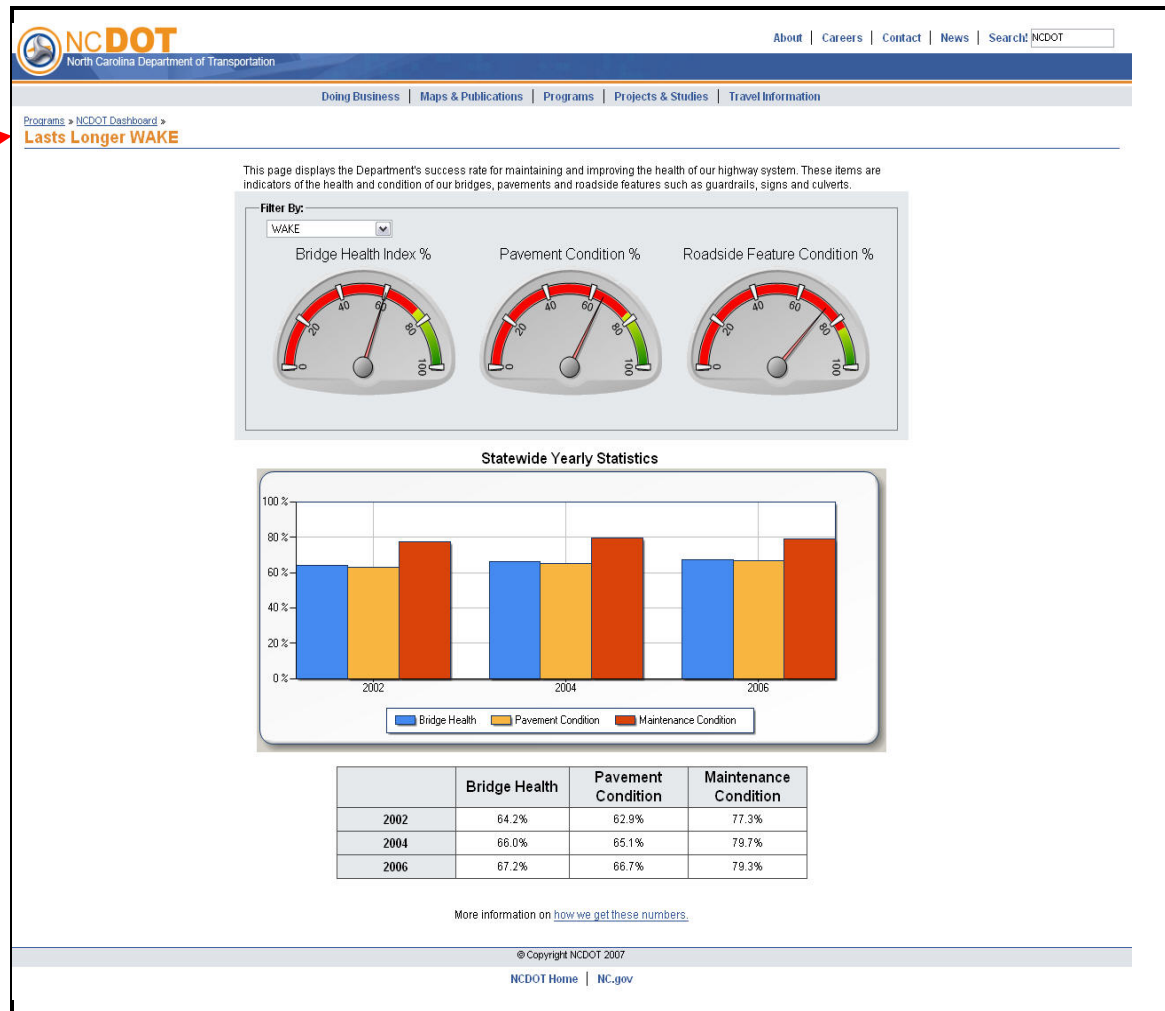
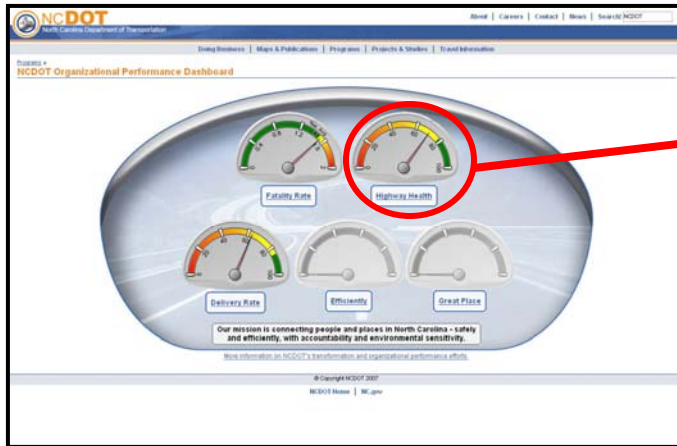
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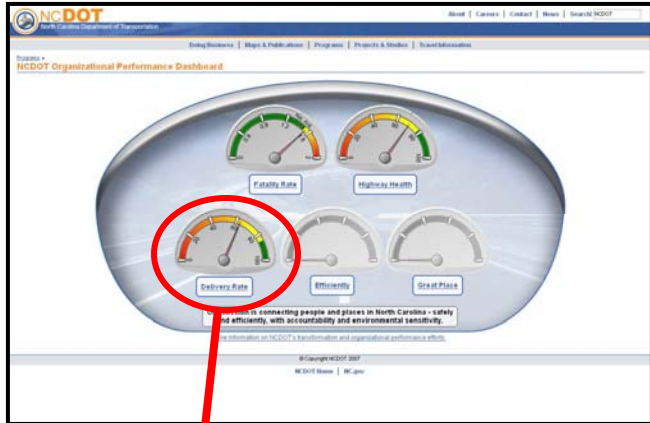
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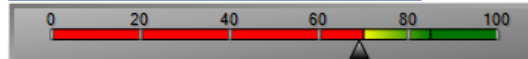
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Delivery Rate

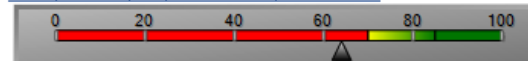
This page displays the Department's success rate for delivering the Transportation Improvement Program (TIP) and environmental compliance programs. These items are indicators of how well the Department is delivering its planning, design, construction and maintenance activities while protecting the state's natural resources.

TIP Preconstruction

[% of Plans Completed and Bids Opened On time:](#)

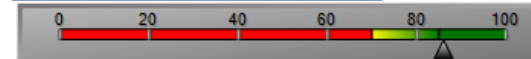


[% Right of Way Acquisitions Begun On Time:](#)

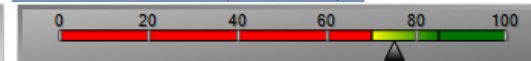


TIP Construction

[% Active Construction Projects On Schedule:](#)

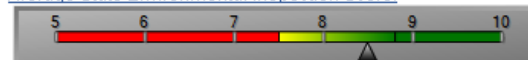


[% Active Construction Projects on Budget:](#)



Environmental

[Average State Environmental Inspection Score:](#)

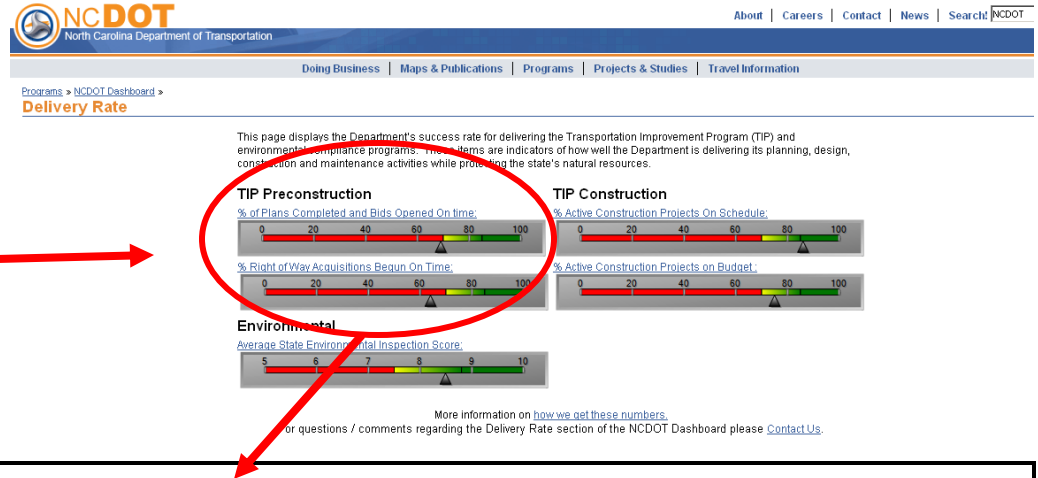
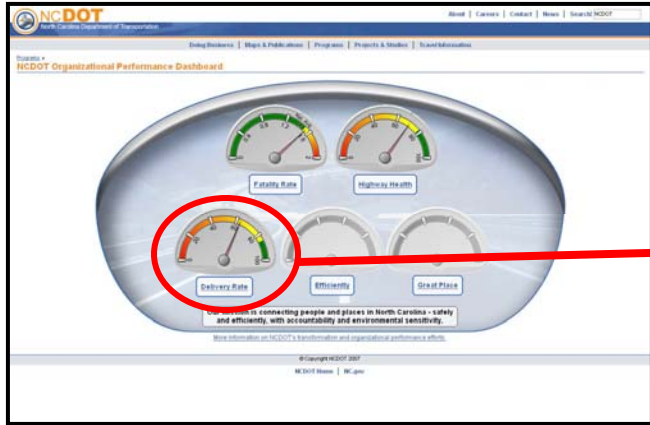


More information on [how we get these numbers](#).

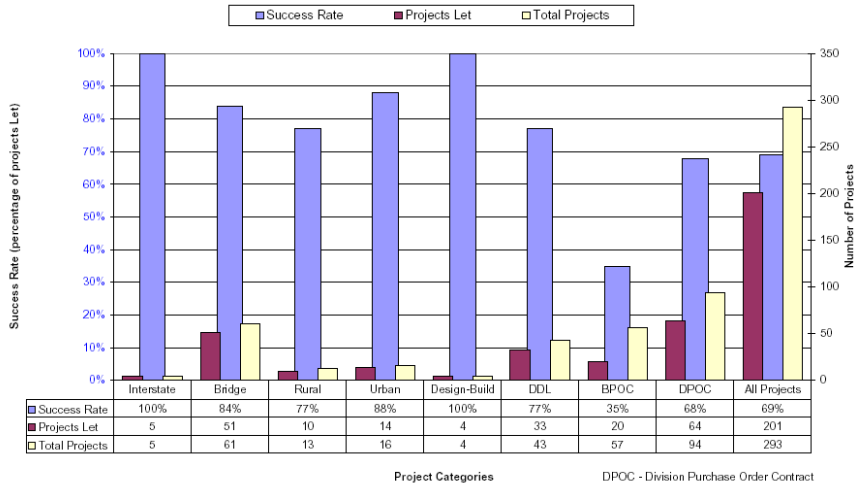
For questions / comments regarding the Delivery Rate section of the NCDOT Dashboard please [Contact Us](#).

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Make Our Transportation Network - "Works Well" Delivery Gauges



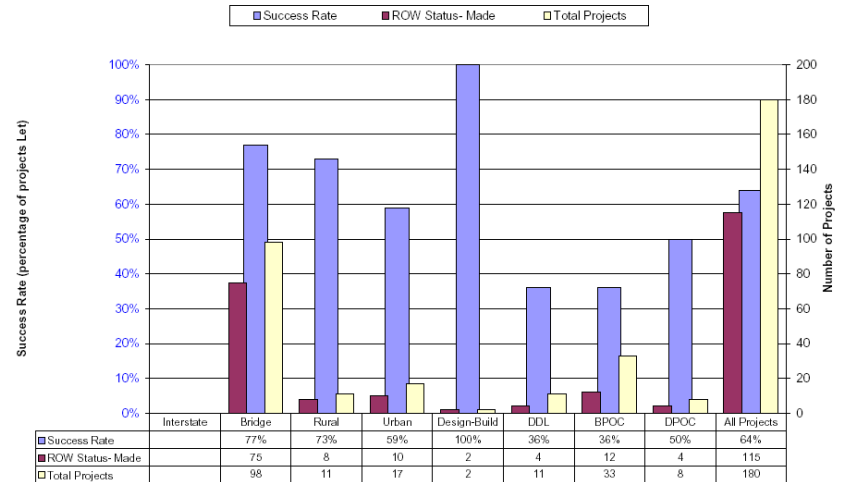
Letting Success Rate (January - December 2007)



Project Categories

DPOC - Division Purchase Order Contract
DDL - Division Design & Let (in Raleigh)
BPOC - Bridge Purchase Order Contract

Right-Of-Way Success Rate (January - December 2007)

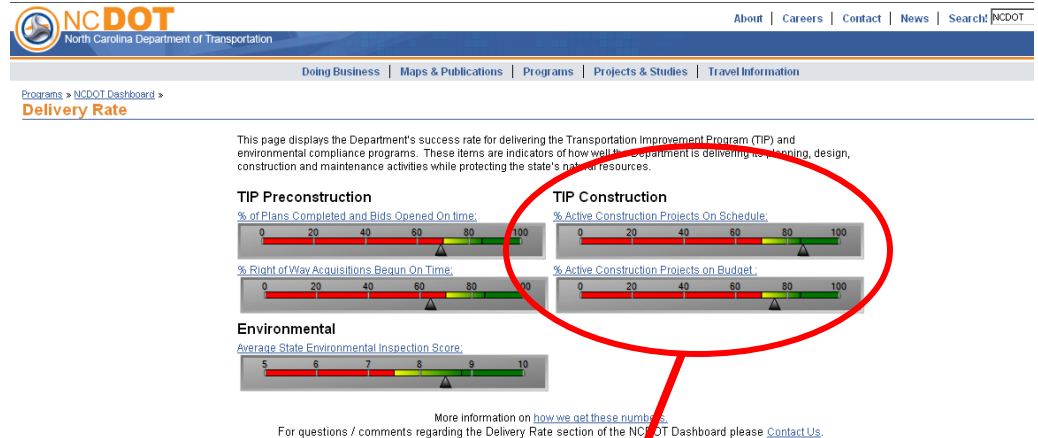
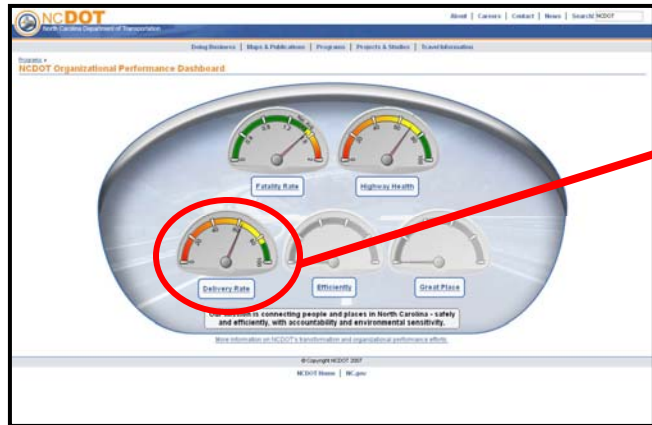


Project Categories

DPOC - Division Purchase Order Contract
DDL - Division Design & Let (in Raleigh)
BPOC - Bridge Purchase Order Contract

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North Carolina Department of Transportation
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Contract Number: C201644 Physical Division: 7 Administrative Division: 7 Length: 0.265 miles Resident Engineer: Donald R. Huffines Location Description: BRIDGE OVER JORDAN CREEK AND APPROACHES ON SR-1002. Type of Work: GRADING, DRAINAGE, PAVING & STRUCTURE. Contractor Name: APAC - ATLANTIC, INC. THOMPSON ARTHUR DIVISION	Route: SR-1002 County: Alamance TIP Number: B-4000 Federal Aid Number: BRZ-1002(11) RE Phone Number: (336)570-6830
Contract Number: C201749 Physical Division: 7 Administrative Division: 7 Length: 7.855 miles Resident Engineer: Donald R. Huffines Location Description: I-40/85 FROM NC-54, MP 148, IN ALAMANCE CO TO WEST OF SR-1114 (BUCKHORN RD) IN ORANGE CO. Type of Work: MILLING & RESURFACING. Contractor Name: APAC - ATLANTIC, INC. THOMPSON ARTHUR DIVISION	Route: I-40 County: Alamance TIP Number: I-4918 Federal Aid Number: IMS-40-3(119)148 RE Phone Number: (336)570-6830
Contract Number: C201811 Physical Division: 7 Administrative Division: 7 Length: 0.142 miles Resident Engineer: Donald R. Huffines Location Description: BRIDGE OVER VARNELS CREEK AND APPROACHES ON SR-2116. Type of Work: GRADING, DRAINAGE, PAVING, AND STRUCTURE. Contractor Name: R.E. BURNS & SONS CO., INC.	Route: SR-2116 County: Alamance TIP Number: B-4002 Federal Aid Number: BRZ-2116(1) RE Phone Number: (336)570-6830

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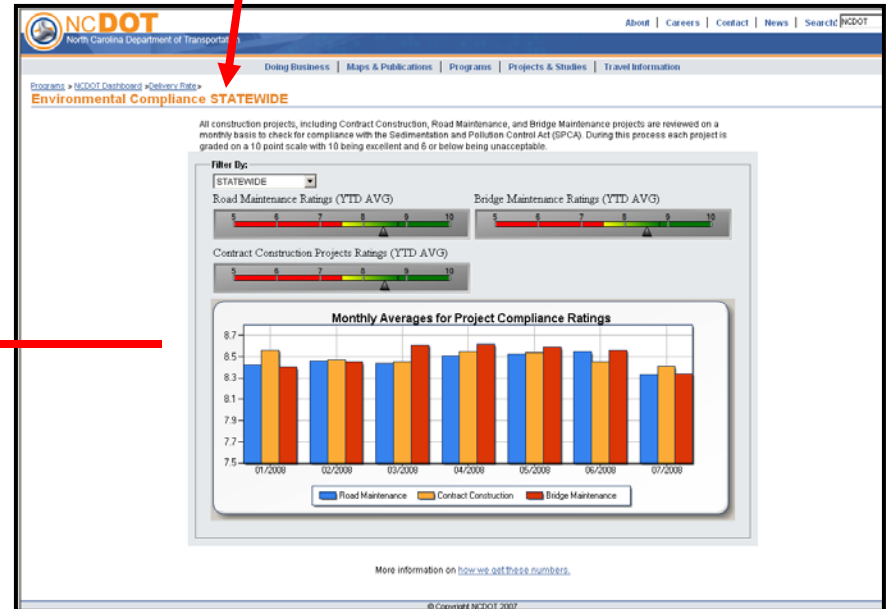
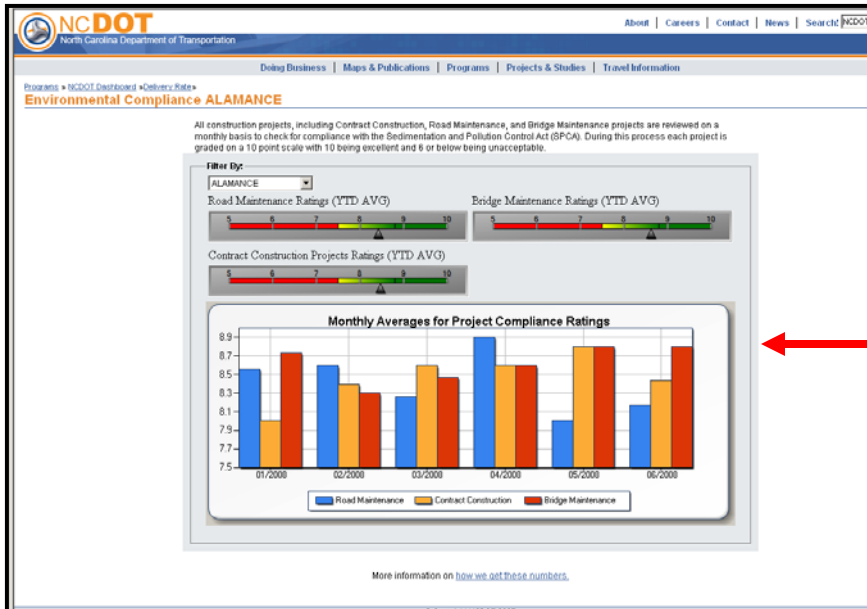
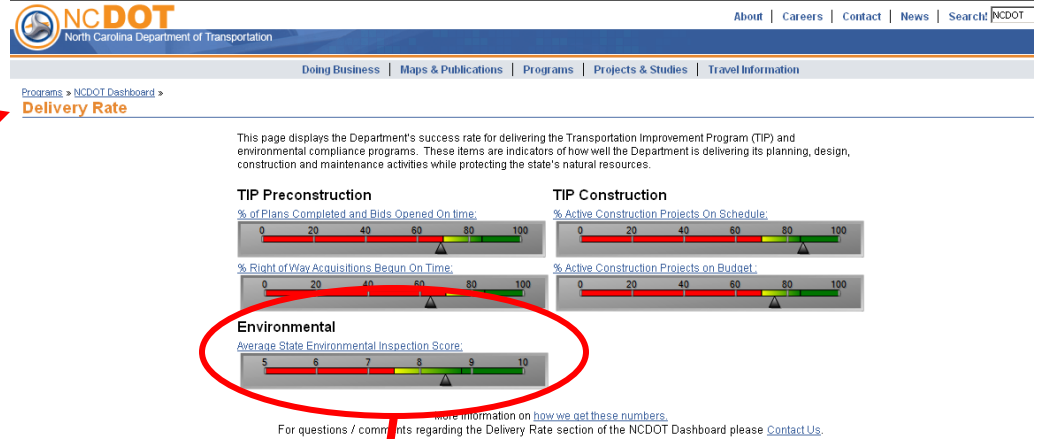
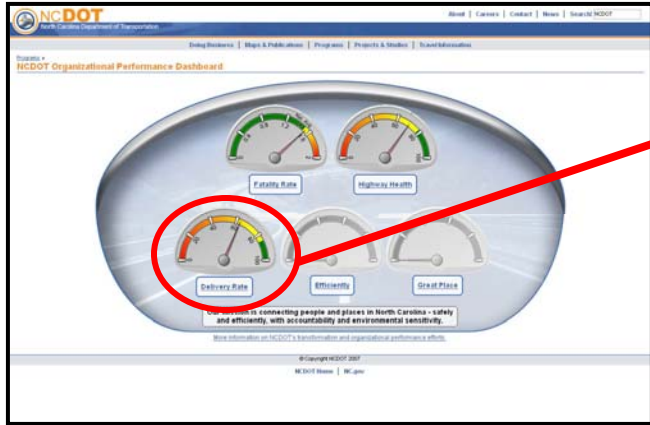
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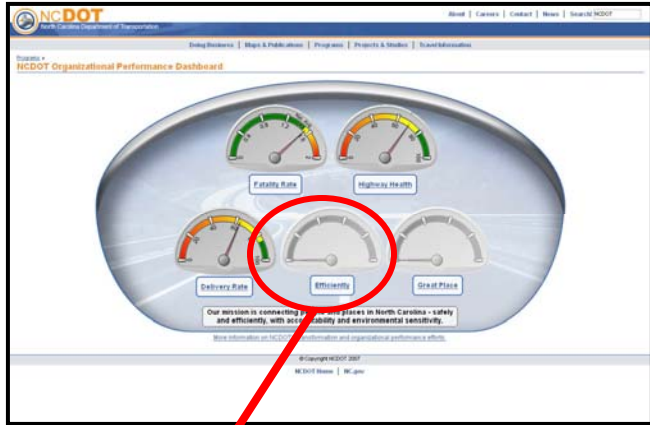
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Make Our Transportation Network - "Works Well" Delivery Gauges



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

"Connecting people & places in North Carolina – safely and efficiently, with accountability and environmental sensitivity"

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

MEMO TO: **TMT's Leadership Team**

Steve Varnedoe, PE Susan Coward
Mark Foster Bill Rosser, PE
Roberto Canales, PE

FROM: **TMT's Performance Metrics & Management Team (PM&M)**

Victor Barbour, PE Ken Pace, PE
Ron Allen, PE Ehren Meister, MPA

DATE: July 13, 2007

SUBJECT: Future Vision of NCDOT's Performance Metrics & Management

The usage and applicability of performance metrics is varied across the Divisions, branches, and units within the Department of Transportation. It is safe to say that the performance metrics that exist today have not been systematically tested for linkage to a single Department-wide vision statement and set of goals. In addition, the NCDOT does not currently have an Executive Dashboard reporting system that displays certain high-level key metrics tied to a vision statement and goals.

The goals and vision of the PM&M Team are:

- (1) Develop core value drivers based on the latest approved NCDOT vision statement and goals,
- (2) Determine high-level metrics that will be used for a future NCDOT Executive Dashboard,
- (3) Examine the current usage of performance metrics throughout the Department,
- (4) Develop a methodology for reporting on and managing to metrics that fosters and reinforces an understanding across the Department of our common vision and goals,

- (5) Institute a process for creating Division and branch/unit level dashboards that “roll up” to create the high-level or Executive Dashboard.

A structured performance metrics and management system within the Department of Transportation will

- Empower employees to manage toward clear targets and focus on outputs and outcomes of their work rather than inputs,
- Show employees how their efforts fit in to the DOT's vision and goals and foster a better understanding and conviction of the NCDOT mission,
- Enhance talent and skills among our employees by linking individual employee performance evaluations (PMs) with the unit performance metrics and,
- Better organize and structure our business processes by establishing a formal procedure of status update meetings beginning at the unit level continuing on up to the Secretary and his staff with the purpose of reporting, reviewing, interpreting, and managing performance against the metrics.

PM&M/rda

cc: TMT Team Members

HOW DO WE DEVELOP THE PERFORMANCE MANAGEMENT SYSTEM?





STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

1501 MAIL SERVICE CENTER, RALEIGH, N.C. 27699-1501

LYNDO TIPPETT
SECRETARY

To: NCDOT Manager

From: Performance Metrics & Management Subgroup of TMT

Victor Barbour, PE Ken Pace, PE Ron Allen, PE Ehren Meister, MPA

Subject: **Performance Metrics**

Attached to this e-mail you should find a form that lists proposed performance metrics for your position. The Performance Metrics & Management Subgroup of TMT is in the early stages of a process to develop performance metrics for all employees within the Department as a part of the Department's current transformation efforts. The performance metrics should link to the NCDOT Mission and Goals for all employees, top to bottom, throughout the organization.

Please review this metrics form and think about the performance metrics that you personally should be held accountable. Then think about how you would cascade your metrics to your direct reports and so on, throughout your part of the organization. Please reply to this e-mail when the PM&M Team could review these metrics with you and discuss any concerns or try to answer any questions you may have.

In the future, performance metrics will have a direct connection to the work being performed by the Talent Management Subgroup headed by Stephanie King as Performance Management Plans (PMs) will be adjusted to include the work being done by the PM&M Team. Also, some of the metrics will feed directly into a web-based Executive Dashboard that will be visible by everyone in the organization and the public...much like the one used by Virginia DOT. Other metrics tracked by each Division, Branch, or Unit, will become performance dashboards to monitor the successes or deficiencies of each group and subsequently individual performance.

Thanks for your support to make this transformation effort a success!

PM&M/rda

cc: Roberto Canales, PE Kelly Damron, PE Mark Tyler, PMP

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Customer Service Assessment Instrument and Methodology

Survey of TMT Members Conducted May 27 – June 2, 2008

Issue Area #1 – Objectives

Question: What are the desired benefits or outcomes of a customer service assessment program?

1. Are we responsive, timely, helpful, add value?
2. greater awareness of needs, perspective of citizens who travel the roadways and utilize transportation services
3. To gauge the Department's overall performance serving customers and to gauge Business Unit customer service.
4. to able to obtain information that will enable Business Units assess how there customers feel about services received and areas for improvement.
5. To determine the perception of effectiveness of the Department
6. Improved services, delighted motorists, educated motorists, content employees
7. Feedback to strategically address opportunities for improved customer service.
8. To determine a unit's effectiveness in delivering the PPSI under that Managers delegation.
9. top down and bottom up assessment
10. To improve service delivery
11. It will help with results based performance mgmt (metrics) for some employees and / or units that provide customer service i.e. Admin staff, Photogrammetry, DMV, Training & Dev. to name a few.
12. To determine if the customer is being served well
13. I think the first outcome that should be measured is are we communicating effectively. I believe the public wants to know there concerns are being not only heard but acted on. It would be nice to hi-lite what we've heard as a Department and how we are acting on what we have heard, also hi-lite our successes.
14. to determine the effectiveness of delivering services to the public. of course we should be concerned with promptness and politeness
15. Input from the public on whether or not we are doing a good job. Quality services. Quality, easy to find, helpful information. Courteous, timely responses. Less bureaucracy, more personableness. BUT public opinion is one input into assessing whether or not we offer quality customer service. Many will give poor assessments because they didn't get what they wanted, which does not necessarily mean we are going a bad job. We are working with the whole public's best interest, not for the interest of a particular individual.
16. Lets you measure good/bad a very important goal.
17. To determine if we're providing an acceptable level of customer service and our customers perceive our service as such.
18. Determining how well we are doing serving our customers, and gathering information about how we can improve our service to customers.

Question: Should the assessment / analysis be tied to the NCDOT's 5 goals?

1. Yes
2. yes, it would be the best indicator of progress due to the creation of the dashboard thats also tied to the 5 goals
3. Yes
4. Yes, particularly to our external customers.

5. Yes, As much as possible, but do not allow this to limit the effectiveness of the input. If it doesn't fit nicely or if we lose the point by tying it to the Goals, then don't.
6. For our external customers, it seems that it would be based on Goals 1 - 4, for our internal customers (of whom we cannot forget), it would be based on Goals 4 and 5.
7. Yes.
8. Yes
9. no. it should be general
10. Yes!
11. As much as possible...the goals drive what we do.
12. Absolutely
13. yes
14. yes
15. Yes, but ask questions that drill a little deeper (a few questions on each goal that suggest kinds of topics they should comment on).
16. Yes
17. Absolutely.
18. Where possible, we should tie the analysis to the 5 goals, but it is possible that some of the information desired may not fit neatly into one of the five goals.

Issue Area #2 – Level or Depth

Question: How far down in the organization should customer service assessments be conducted? At the Department level overall? At the Division level (e.g. DMV, Division 7, Ferry Division, etc.)? Or at the unit level (e.g. Driver and Vehicle Services, Alamance County Maintenance, Hatteras Operation)?

Department		0.0%	0
Division		17.6%	3
Unit		82.4%	14
	<i>answered question</i>		17
	<i>skipped question</i>		1

Please feel free to comment on your choice of level.

1. We need to know the Department as a whole is customer service oriented.
2. keeping it at the Division level keeps in more manageable and provides a quick overall guage of how the Division is faring
3. I wouldn't think that you would want to go too far down within the organization with the survey. It would result in too much information that could not be analyzed.
4. At the business unit in the begining, then to the division/branches, and then for the Deaprtment as a whole.
5. I think it would be nice to know how the Units compare. Is it true that if you capture data at the Unit level, the Division and Department can determine their assessment by rolling the information up?
6. The more personal to the individuals, the more an assessment will mean to the work Unit.
7. Surveys need to be at the business unit level.
- 8.
9. For it to mean anything where action can be taken it should be down to the unit level. However, what should be reported publicly should only be division level and above.
10. Customer may not be aware of what units do.
11. I say down to the unit level because units provide customer service to each other. NEU provides info to Hydro, Location provides info to RDU, HEU works with RDU, etc.
12. In IT the Unit level makes sense
13. I believe the unit level so that the importance is conveyed to everyone.
14. I'm not sure I understand this question. I think a customer service assessment should be asked of the customers and not of us.
15. BUt we have to be careful to define what the units are and what they are responsible for so that folks direct their comments appropriately.
16. Certain areas within a Divison may not contact the public as much as another.
17. Customers are not only external to the department, but internal as well.
18. I believe we should survey down to the level of the top 40(?) managers initially and then we can go deeper later on.

Issue Area #3 – Customization

Question: Should the department utilize a standard instrument that can be used by all units or should customized assessment instruments be developed for each unit conducting assessments?

1. Try standard first.
2. Department should have one instrument for guaging overall DOT performance that ties back to 5 goals AND create other customized assessments for specific service areas (ex. Ferry Division, DMV, Maintenance offices, etc.)
3. A standard instrument would be best.
4. I feel that common templates should be developed that would allow for a mnor amount of customization
5. I would like to see it standardized
6. It seems that you could start with a general standard instrument and talk about deliverables and time lines, objectives, and answers would need to be specific to receive more detailed answers.
- 7.
8. Standard instruments

9. As standard as possible across all of DOT
10. Neither, it should be hybrid - mostly (75%) the same for all Units.
11. Some standardization may be possible, but my first thought was that because of the varied services we provide, a customized assessment may be more appropriate.
12. Should standardize as much as possible for ease of maintenance
13. This one is difficult, it would be easy to gage success by a standardized instrument, however if each unit can customize we may see something that one unit has that is outstanding!
14. customized to a certain extent
15. Standard seems easier
16. standard
17. yes
18. We should standardize where possible, but customization will probably be necessary since each unit provides different services and serves different customers.

Issue Area #4 – Program Management

Question: How is such a program best managed? Centrally or by each individual Division or Unit?

Centrally		58.8%	10
Division / Unit		41.2%	7
	answered question		17
	skipped question		1

Please feel free to comment on your choice.

1. One stop shopping for info. & coordination of data.
2. Best if only 2-3 individuals manage the program from a central unit such as Productivity Services
3. The BU could manage the program but could provide the results for statewide analysis.
4. at the Division/ unit with reports being provided to the central office
5. I think the Division/Unit can assist in making sure the survey is completed, but I believe it should be centrally scheduled and tabulated. This would help with seeing trends across the Department based on time of year or external circumstances effecting the responses such as elections, pay raises, hurricanes, etc.
6. Units can address issues as they arise. Sharing ideas and concerns will need to be done centrally, but I just don't think we can really tackle this issue without getting into the ditches. It's not a high level fix.

7. Survey's need to be centrally managed but results shared with every business unit. Very serious consideration needs to be given to having a third party do the survey so that the respondents feel better that the results will be kept confidential. Tell the respondents their input will be kept confidential. The comments need to be kept confidential also. Names in the comments could be viewed by the Secretary but by no one else and the names need to be redacted as necessary. The "power" of comparing one unit to another and having every business unit manager see these results works wonders.
8. With adequate feedback to the manager being measured.
9. Centrally so a "third party" or someone not involved in the units collecting the data. The unit would only see the AVGs and summary comments.
10. Customers should be able to respond to one location not many.
11. A central group is probably needed to develop the surveys...just like we need to let a central group handle metrics.
12. Necessary changes to customer service at the Unit level should be managed by the Unit and reported up to a central monitoring area
13. Individually for accountability
14. each division/unit could manage as long as there is accountability for the types of questions, timing, etc.
15. But reports to Raleigh so that compilations can be made, and Department-wide data tracked and assessed.
16. Dedicated support leads to consistency and uniformity.
17. Centrally, but with the division and unit having access to the responses and input in question formulation.
18. The divisions / units should capture and manage their own data because they are in a position to act on the data.

Issue Area #5 – Internal versus External Customer Service

**Question: Should we conduct assessments of customers external to the NCDOT only?
Customers who are internal to NCDOT only? Or both?**

External		17.6%	3
Internal		0.0%	0
Both		82.4%	14
	<i>answered question</i>		17
	<i>skipped question</i>		1

Issue Area #6 – Timing and Frequency

Question: How often should assessments be conducted?

1. every 1 to 2 years.
2. comments can be collected throughout the year but assessments should be conducted twice per year
3. Annually
4. on a 2 year rotation basis or whenever problems arise
5. I don't have a strong opinion other than on a regular basis. I think annually or every two years.
6. yearly.
7. Let's be consistent with other TMT activities. Surveys need to be done annually and at approx. the same time every year. A favorite way of mine is to have an abbreviated version one year and a more detailed survey the next year and then continue to alternate. The "short" survey should be only 10-15 questions which are the same as those contained within the larger survey so that someone can correlate results annually. Each survey also needs to have a section to allow respondents to provide comments. I know most people use this to "vent" but they need to be able to do so.
8. Vary by unit.
9. Once a year, but a rolling approach for completing them
10. Annually
11. Unlike an employee survey which should probably be conducted every two years, I see a customer service survey being conducted yearly. I would see this tool as a metric source for many employees.
12. Yearly
13. yearly because I see this as labor intensive
14. overall every year or at least every two years, however there may be some assessments that can be direct feedback (i.e. driver license office) or after a large effort (TIP meeting)
15. Every two years
16. 2 years
17. Monthly
18. For large organizations with many customers (like DMV) assessments could be conducted on a continuous basis. For smaller units with fewer customers, assessments could be performed quarterly, semi-annually or annually.

Question: How often should assessment data be reported?

1. Within a couple of months of the survey.
2. twice per year. For example, in Jan 09 provide a report that covers July-Dec 08. In July 09 provide a report that covers Jan-June 09. This way managers know feedback is coming every 6 months and you can begin to determine what progress has been made based on the previous report
3. Annually
4. as it is done
5. As it is obtained.
6. yearly, so you can truly see if any changes have occurred
7. Top management needs to ask every business unit to develop a plan to address weaknesses or "opportunities" identified in the survey. Okay, maybe not every weakness but I think they need to address 2-4 of the top five issues and report back to top management. Also, units that have very high scores might be asked to share with others why they believe they are so successful.
8. Annually
9. As data is available (no longer than 1 year) so the rolling effect would adjust the gauge up or down.

10. Annually
11. Yearly
12. Yearly
13. yearly
14. as often as they are conducted
15. Every two years.
16. 2 years
17. Monthly
18. Assessment data should be acted on as soon as an opportunity or problem is identified. Reporting may depend on department reports that would be generated, but at least annually.

Other Comments:

There needs to be a commitment from management on what will be done with the survey results. If all we are going to do is survey and not follow up or require someone to do something based on the results, why even start? Also, I presume we are talking here only of internal surveys?

Surveys are great tools if properly used!

I can find FHWA employees who do these annual surveys if you want to talk to them for lessons learned.

NCDOT Customer Service Assessment

Concept Summary

June 25, 2008

Objective:

Assess customer satisfaction with the products and services the various units in the NCDOT provide.

Question:

How do we assess customer satisfaction (internal and external) at the NCDOT considering the wide variety of business units, products, services, customers and customer groups represented?

Concept:

Conduct a basic survey of external and internal customers / customer groups using a standard instrument via internet or paper to determine how they "feel" about the products or services provided by each business unit. Follow the initial assessment with a closer look at those business units having the lowest scores.

Approach:

1. Build a list of participating units
2. Conduct a workshop for Directors / Managers of participating units – walk them through the process
 - Education component
 - Process overview
 - Instrument
 - Identify “Top 5” customers or customer groups for each participating unit
 - Note criteria or rationale used to reach that conclusion
 - e.g. Volume of work, significance of projects, importance to meeting department goals, dollars spent, revenue generated, etc.

- Establish expectations for developing a list of email addresses or mailing addresses for customers (or quantity of paper surveys needed for some units that will hand surveys out to customers)
 - Ensure all participating units are represented and leave the workshop knowing what to do next
3. Develop an email database by unit and a mailing list by unit
 4. Conduct survey
 5. Provide each business unit an objective set of measures and potentially information with which to improve
 6. Act on results
 7. Identify criteria or cutoff for doing more detailed analysis
 8. Follow up with units needing to look deeper
 - Develop custom instrument based on results of initial survey and / or focus groups
 - Conduct follow up survey
 - Act on results

Potential Survey Questions:

How do you feel about the products or services you or your organization receive from the _____ Division / Unit of the NCDOT? <Extremely Satisfied> <Satisfied> <Neutral> <Dissatisfied> <Extremely Dissatisfied>

I am satisfied with the products or services the _____ Division / Unit of the NCDOT provides me or my organization. <Strongly Agree> <Agree> <Neutral> <Disagree> <Strongly Disagree>

List the most important (top 3) elements, dimensions or aspects of service or product quality you look for in the services or products provided by the _____ Division / Unit of the NCDOT. Next to each element, dimension or aspect of service or product quality, please indicate how well the _____ Division / Unit of the NCDOT is doing meeting your criteria by selecting the appropriate choice on the rating scale. <Extremely Satisfied> <Satisfied> <Neutral> <Dissatisfied> <Extremely Dissatisfied>

Other potential dimensions:

- Timeliness

- Quality
- Responsiveness
- Opportunity for improvement (i.e. what we can do to be better?)

Challenges and Issues:

There are a variety of organizations we can call “customer” with different needs and concerns.

Some business units have a customer and supplier relationship with another organization simultaneously...how do we handle that?

Which business units should be included in this assessment effort? In other words, how deep should we go in the organization?

How many customers or customer groups should be asked for input? We propose “top 5.” (Consider that the DMV has ~6 million external customers. The Print Shop has a couple hundred internal customers.)

What should the cutoff be for following up and taking a closer look? Comparison of units may be difficult due to dramatic differences in number of customers (e.g. DMV in the millions, print shop in the hundreds, and some units only a handful).

Who administers the survey?

Central management versus individual unit management
Bureaucracy versus involvement

Will the data be used to evaluate managers? If so, what should be assessed? Raw score or percentage, or movement of the score over time.

Potential for saturation if too many internal customer surveys are conducted simultaneously.

Logistics:

Three Approaches to Data Collection:

- Email a link to a web-based survey for internal and external customers
- Paper survey mailed to customers (e.g. DMV driver license customers)
- Paper survey handed to customers (e.g. Ferry Division)

Sampling at DMV using automated systems.

How do we establish the appropriate email list by unit?

How do we get a paper survey in the customer's hands? How do we get the completed surveys returned and processed?

Next Steps:

Identify units that will participate.

Develop survey instrument, both electronic and paper.

Schedule workshop(s)

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Potential Survey Questions:

How do you feel about the products or services you or your organization receive from the _____ Division / Unit of the NCDOT? <Extremely Satisfied> <Satisfied> <Neutral> <Dissatisfied> <Extremely Dissatisfied>

I am satisfied with the products or services the _____ Division / Unit of the NCDOT provides me or my organization. <Strongly Agree> <Agree> <Neutral> <Disagree> <Strongly Disagree>

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Other potential dimensions:

- Timeliness

- Quality
- Responsiveness
- Opportunity for improvement (i.e. what we can do to be better?)

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Customer Service Assessment

Jeff Roerden

Doug Cox

Victor Barbour, Sponsor



Advisory Panel

Jon Nance, Operations

Tony Spence, DMV

David Smith, Preconstruction

Miriam Perry, Pub. Trans.

Steven Hulse, IT

Stephanie King, Fin. Mgt.



Objectives

- Review the Mission, Concept and Approach
- Receive Feedback
- Prepare the Presentation for the Leadership Team



Mission Statement

Assess customer satisfaction with
the products and services the various
units in the NCDOT provide



The Challenge

How do we assess customer satisfaction (internal and external) at the NCDOT considering the wide variety of business units, products, services, customers and customer groups represented?



Definitions

- Customer: Any person or organization who receives or uses the products, services or information provided by a unit of the NCDOT (Supplier)
- Supplier: Any unit of the NCDOT that provides a product, service or information for use



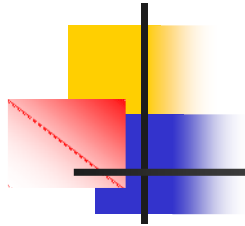
The Issues

- Developing a customized assessment instrument for each customer-supplier combination in the NCDOT is too costly and time-consuming
- Using a standardized assessment instrument for all customer-supplier combinations will not provide enough detailed information to be actionable



Other Hurdles

- Identifying the units that will participate
- Developing a list of customers (internal and external) for each participating unit
- Determining how many customers or customer groups should be solicited for input



Hurdles - Continued

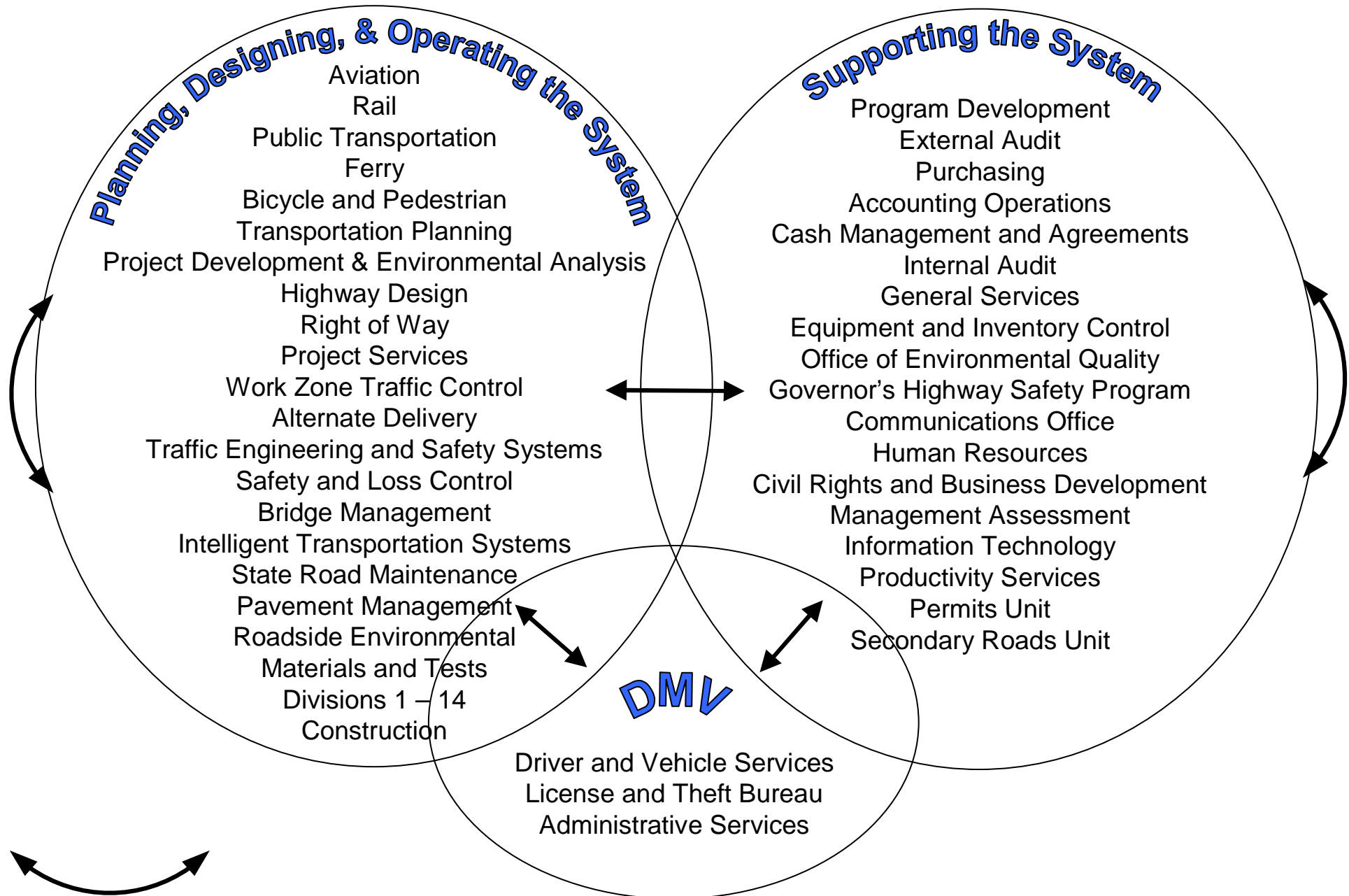
- Developing a workable technical solution that makes the process manageable
- Constructing the database and managing the data
- Some customers (internal or external) may be contacted to provide feedback on multiple NCDOT suppliers

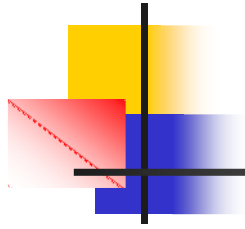


Consideration

- The potential for saturation exists if too many internal customer surveys are conducted simultaneously – this will need to be managed

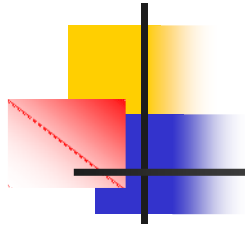
Strategic Prioritization - Business Units which Develop Strategic Plans





Hurdles - Continued

- Differences in unit scores may be due to dramatic differences in products and services provided as well as number and type of customers served



Recommendations

- Use a simple, standardized survey instrument to get basic customer feedback
- Identify the “Top 5” customers or customer groups for each unit as a starting point
- Conduct the survey
- Provide additional assistance to those units needing it



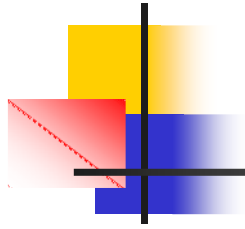
The Concept – Phase 1

- Conduct a basic survey of external and internal customers using a standard instrument via internet or paper to determine how they “feel” about the products or services provided by a business unit



The Concept – Phase 2

- Follow the initial assessment with a closer look at those business units with the greatest opportunity to improve



Data Collection Methods

- Email a link to a web-based survey (preferred method)
- Paper survey mailed to customers (DMV a candidate for this method)
- Paper survey handed to customers (e.g. Ferry Division)
- Face-to-face interviews are a possibility if units have the resources to do it



The Approach

- Build a list of participating units
- Conduct workshops for Directors / Managers of participating units
- Identify customers for each unit
- Develop an email database and a mailing list by unit
- Conduct survey



Approach - Continued

- Provide each business unit an objective set of measures
- (Act on results)
- Identify criteria or cutoff for doing more detailed analysis
- Follow up with units needing to look deeper



Consideration

- The cutoff for follow up will not be apparent until after implementing the survey and doing the analysis



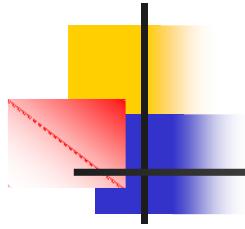
Workshop Content

- Process Overview
- Identify Customers / Customer Groups
- Establish expectations for developing a list of email addresses or mailing addresses for customers (Homework!)



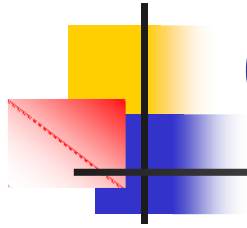
Consideration

- Since there is such a wide variety of customer-supplier relationships, some Directors / Managers may need assistance identifying appropriate customer groupings



Sample / Potential Questions

- How satisfied are you with the products, services or information you or your organization receive from _____?
- List what you need as our customer and tell us how we are doing providing it



Other Dimensions

- Quality
- Timeliness
- Responsiveness
- Opportunity for Improvement



Consideration

- Choice of questions will be critical since so few questions will be asked



One Final Note

- This is a short-term strategy
- A long-term follow on strategy will need to be developed once we have some experience with this survey



Next Steps

- Finalize the technical solution
- Identify units that will participate
- Develop the survey instrument (electronic and paper)
- Schedule workshops



TMT Feedback

- Consider piloting the concept in some units
- Try to tie the results to NCDOT Goals
- Consider asking citizens what they want directly
- Determine what the units with the highest scores are doing differently



TMT Feedback

- Consider grouping like units
- Face-to-face interviews are a good way to get information and build relationships



TMT Questions

- Is this a DOT survey or a business unit survey?
- Who owns the survey? Who owns the process?
- What is the relationship between the survey and the PDA?
- How handle units that already have surveys in place?

Customer Service Assessment

LT Feedback – July 23, 2008

Feedback:

- The concept is good—like approaching it in two phases
- Like the TMT suggestion to pilot this in a few areas

Direction:

- Develop the questions
- Come up with a list of pilot areas

Other:

- Piloting this will provide an opportunity to refine the process before going department-wide

Potential Pilots:

- Less than 10 units
- Consider a cross section of the department
- Consider including some units that serve external customers primarily, some units that serve internal customers primarily, and some units that serve both
- Consider including some units that will use each of the data collection methods (web-based survey, mailed survey, survey handed to customer or interview)
- DMV (mostly external customers, paper)
- One or a few Highway Divisions (mostly external customers, web? / paper?)
- Oversize / Overweight Permit Unit (mostly external customers, web? / paper?)
- Human Resources (mostly internal customers, web?)
- Roadside Environmental (speak with Ken Pace about comment cards at rest areas)

Added at 7/28/08 TMT Meeting

- IMAP (external customers, paper)

Criteria for Selecting Pilot Units for Customer Service Assessment:

The aim is to have some variety and cover most of the bases

- Cross section of the department
- Serve different types of customers:
 - Units that serve external customers primarily
 - Units that serve internal customers primarily
 - Units that serve both external and internal customers
- Use different data collection methods
 - Web-based survey
 - Mailed survey
 - Survey handed to customer

Potential Pilots Already Nominated:

- DMV (mostly external customers, paper)
- A Highway Division (mostly external customers, web? / paper?)
- Oversize / Overweight Permit Unit (mostly external customers, web? / paper?)
- Human Resources (mostly internal customers, web?)
- Roadside Environmental (mostly external customers, paper)
- IMAP (external customers, paper)

The possible questions that we are working with as a result of our meeting on Monday address five different dimensions. They are:

- 1) “satisfaction” (in which there are two areas – satisfaction with products, services and information and satisfaction with treatment)
- 2) “meeting customer requirements”
- 3) “fit” between customer needs and product/service/information
- 4) “experience” working with the unit
- 5) “relationship” with the unit

Since the purpose of this first phase is to rank order the units on some discrete measure, I think it is less important what that actual measure is and more important to ensure that whatever the measure, it is fair to every unit. With that said, a general rating question about satisfaction, or meeting requirements, or the strength of a relationship can be broad enough that each unit should have some connection to the customer through these concepts. Even rating the overall experience of working together or the fit between the customer and the provider’s products/services should offer the ability to provide a rating. Where a decision about the actual dimension to be used becomes critical is in the second phase. But for now, a good argument can be made for any of these five concepts.

Regardless of which dimension is chosen, I would suggest making the question one in which a numeric rating scale is used – as opposed to a verbal scale (e.g., very satisfied, somewhat satisfied... very dissatisfied). The numeric approach represents more in the way of an interval scale (while not truly an interval scale, the perception is generally that there is equal distance between each rating point), whereas the verbal scale provides only ordinal choices (i.e., there is an order to the choices but the “distance” between choices may not be perceived by all as being the same). In that we are wanting to create a ranking of units based on their index score, a numeric/interval measure provides the best approach to do this.

In using a numeric rating scale, I would offer the further suggestion of making it a 7-point scale rather than 4 or 5 points in order to increase the differentiation of responses and avoid as much as possible “ties” between units for their index score. The use of a 7-point scale also strengthens the rationale for using a numeric rating approach rather than a verbal one. Think of the difficulty in attempting to come up with seven appropriate and somewhat evenly spaced verbal labels.

Given, therefore, the use of a 7-point numeric rating scale, below are sample questions for each of the measurement dimensions we talked about. For the time being, I am working off the assumption that just one closed-end question will be used.

Satisfaction with products, services, information:

Using a scale of 1 to 7, where 1 means you are *not at all satisfied* and 7 means you are *very well satisfied*, please rate your overall level of satisfaction with the service/product/information provided by this NCDOT unit.

Satisfaction with treatment:

Using a scale of 1 to 7, where 1 means you are *not at all satisfied* and 7 means you are *very well satisfied*, please rate the level of customer service treatment you receive from this NCDOT unit.

Meeting customer requirements:

Using a scale of 1 to 7, where 1 means your *requirements are rarely met* and 7 means your *requirements are always met*, please rate this NCDOT unit in terms of its ability to meet your overall customer requirements.

Fit between customer needs and products/services:

Using a scale of 1 to 7, where 1 means the unit's products or services *rarely fit your needs* and 7 means the unit's products or services *always fit your needs*, please tell us how you rate this NCDOT unit in terms of its ability to match its products/services to your particular customer needs.

Experience working with the unit:

Using a scale of 1 to 7, where 1 means you have had a *generally negative experience* and 7 means you have had a *highly positive experience*, please rate your overall experience working with this NCDOT unit.

Relationship with the unit:

Using a scale of 1 to 7, where 1 means *very negative* and 7 means *very positive*, please rate your overall relationship with this NCDOT unit.

As for the open-ended question, we are looking at two approaches from your notes. One seeks fairly specific information from respondents -- *top three things looked for* -- while the other is a little more general -- *how can you be better served?*

I would be interested in hearing which of the two a manager would prefer/provides the most useful information if only one is used. Here are a couple samples:

Please list the three most important attributes you look for in the product or service you receive from this NCDOT unit.

In what ways can this NCDOT unit better serve your customer needs?

TMT Input:

Hi Doug,

I took the last document I sent you yesterday (with my preferences in **green**, **red**, and **blue**) and have included some TMT input using **brown** type. I polled six TMT members and asked them to choose their top three closed-end questions and their top one open-ended question. They also provided a couple of comments.

Overall Notes:

Doug, I concur with using a 7 point numeric rating scale. I am not convinced we need to limit this to one closed-end question. That said, I have indicated the questions I think we should forward to the Leadership Team with a **Yes**, and questions I would eliminate from consideration with a **No**. I have not had a chance to get input from other folks on the TMT, but will try to do so in the morning. Jeff

Potential Closed-End Questions for Customer Service Assessment

Satisfaction with products, services, information: Yes

6 TMT votes – unanimous – definite keeper

“Using a scale of 1 to 7, where 1 means you are *not at all satisfied* and 7 means you are *very well satisfied*, please rate your overall level of satisfaction with the service / product / information provided **to you** by this NCDOT unit.”

Satisfaction with treatment: No

3 TMT votes – ?

“Using a scale of 1 to 7, where 1 means you are not at all satisfied and 7 means you are very well satisfied, please rate the level of customer service treatment you receive from this NCDOT unit.”

Meeting customer requirements: No

“Using a scale of 1 to 7, where 1 means your requirements are rarely met and 7 means your requirements are always met, please rate this NCDOT unit in terms of its ability to meet your overall customer requirements.”

3 TMT votes – ?

Fit between customer needs and products/services: Yes

“Using a scale of 1 to 7, where 1 means the unit’s products or services rarely fit your needs and 7 means the unit’s products or services always fit your needs, please tell us how you rate this NCDOT unit in terms of its ability to match its products/services to your particular customer needs.”

1 TMT vote – ?

Comment: Frequency of customer contact with a unit may make a particular question more or less appropriate for the circumstances. This question, for example, would be appropriate for a customer who has frequent contact, but may not be appropriate for a customer who rarely has contact, such as a DMV customer who interacts with DMV once per year or less. We could consider asking the customer “how often do you interact with this unit?” and ask a different service question based on the response. One end of the scale could be anchored with “once per year or less.” The other end of the scale could be anchored with “daily.”

Experience working with the unit: Yes

“Using a scale of 1 to 7, where 1 means you have had a generally negative experience and 7 means you have had a highly positive experience, please rate your overall experience working with this NCDOT unit.”

5 TMT votes – nearly unanimous – keeper

Relationship with the unit: No

“Using a scale of 1 to 7, where 1 means very negative and 7 means very positive, please rate your overall relationship with this NCDOT unit.”

0 TMT votes – no need to include this one

Potential Open-Ended Questions for Customer Service Assessment

Top Three: No

“Please list the three most important attributes you look for in the product or service you receive from this NCDOT unit.”

0 TMT votes – no need to include this one

Better Service: Yes

“In what ways can this NCDOT unit better serve your customer needs?”

6 TMT votes – unanimous – definite keeper

One person commented that they liked this question because it gives the customer the opportunity to provide valuable input about improvement opportunities without confusing them with “attributes” which might limit their thinking and creativity.

Another comment received is that we should provide an “Other Comments” section to give the customer an opportunity to tell us something else that is on their mind.

#	Office / Unit	Subordinate Units
	NCDOT	All
**	**NCDOT Administration**	**
1	Office of the Secretary of Transportation	Chief Dep. Sec., Dep. Sec. for Transit, Legal Counsel, Turnpike
2	Intergovernmental Affairs & Budget Coordination	GHSP, OEQ, APA, Fed. Programs, SPOT
3	Bicycle & Pedestrian Division	
4	Deputy Secretary for Administration	Gen. Svcs., Civil Rights, Internal Audit, Mgt. Assess., HBCU
5	Communications Office	
6	Human Resources	
	Chief Deputy Secretary	Special Projects, Communications Office, HR
	Deputy Secretary for Transit	Rail, Ferry, Aviation, Public Trans.
	Chief Financial Officer	Fin. Div., Program Dev., Purchasing, Accounting Ops.
	Chief Information Officer	Information Technology
	DMV Commissioner	Driver & Veh. Svcs., License & Theft, Admin. Svcs.
**	**Financial Division**	**
7	Program Development	
8	Purchasing	
9	Financial Division - Other	Accounting, Ext. Audit, Prod. Svcs., Cash Mgt.
**	**Division of Highways**	**
10	Office of the State Highway Administrator	Preconstruction, Safety & Loss Control, Chief Eng. Operations
	Chief Engineer - Operations	Asset Mgt., Field Operations
	Director of Field Operations	Divisions, Construction Unit, Materials & Tests
	Director of Preconstruction	
11	Division 1	
12	Division 2	
13	Division 3	
14	Division 4	
15	Division 5	
16	Division 6	
17	Division 7	
18	Division 8	
19	Division 9	
20	Division 10	
21	Division 11	
22	Division 12	
23	Division 13	
24	Division 14	

#	Office / Unit	Subordinate Units
25	Construction Unit	
26	Materials & Tests	
27	Asset Management - Bridge Maintenance Unit	
28	Asset Management - Equipment & Inventory Control Unit	
29	Asset Management - Permits Unit	
30	Asset Management - State Road Maintenance Unit	
31	Asset Management - Pavement Management Unit	
32	Asset Management - Roadside Environmental Unit	
33	Asset Management - Other	Secondary Roads, ITS
34	Transportation Planning Branch - Eastern Planning Unit	
35	Transportation Planning Branch - Western Planning Unit	
36	Transportation Planning Branch - Technical Services Unit	
37	Transportation Planning Branch - Research & Development Unit	
38	PDEA Branch - Natural Environment Unit	
39	PDEA Branch - Human Environment Unit	
40	PDEA Branch - Eastern Project Development Unit	
41	PDEA Branch - Central Project Development Unit	
42	PDEA Branch - Western Project Development Unit	
43	PDEA Branch - Bridge Project Development Unit	
44	Highway Design Branch - Roadway Design Unit	
45	Highway Design Branch - Structure Design Unit	
46	Highway Design Branch - Location & Surveys	
47	Highway Design Branch - Photogrammetry	
48	Highway Design Branch - Hydraulics Unit	
49	Highway Design Branch - Geotechnical Unit	

#	Office / Unit	Subordinate Units
50	Right of Way Branch - Negotiations Unit	
51	Right of Way Branch - Appraisal Unit	
52	Right of Way Branch - Administration Unit	
53	Traffic Engineering and Safety Systems - Traffic Safety Unit	
54	Traffic Engineering and Safety Systems - ITS & Signal Systems Unit	
55	Traffic Engineering and Safety Systems - Traffic Congestion & Signing	
56	Project Services Unit	
57	Work Zone Traffic Control	
58	Alternate Delivery Unit	
**	**Transit Divisions**	**
59	Ferry Division	
60	Rail Division	
61	Aviation Division	
62	Public Transportation Division	
**	**Information Technology**	**
63	Engineering Transportation Systems	
64	BSIP	
65	DMV Systems	
66	Infrastructure / Technical Services	
67	Enterprise Services	
**	**Division of Motor Vehicles**	**
68	Driver & Vehicle Services	
69	License & Theft Bureau	
70	Operations	
71	Administrative Hearings	

Customer Service Assessment Pilots

Division 7 – Mike Mills

Public Transportation Division – Miriam Perry

Purchasing – Donnie Thorne

Human Environment Unit of PDEA Branch – Drew Joyner

Roadway Design Unit of Highway Design Branch – Jay Bennett

IT Enterprise Services – Steven Hulsey

DMV Driver and Vehicle Services – Tony Spence



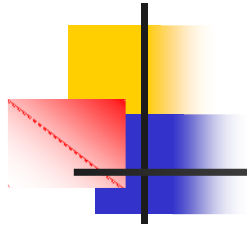
Customer Service Assessment

Doug Cox
Jeff Roerden



Objectives

- Review the Mission, Concept and Approach
- Review Challenges, Issues and Hurdles
- Receive Feedback
- Refine the Approach
- Begin Gathering Data



Mission Statement

Assess customer satisfaction with
the products and services the various
units in the NCDOT provide



Advisory Panel

Jon Nance, Operations

Tony Spence, DMV

David Smith, Preconstruction

Miriam Perry, Pub. Trans.

Steven Hulse, IT

Stephanie King, Fin. Mgt.



The Challenge

How do we assess customer satisfaction (internal and external) at the NCDOT considering the wide variety of business units, products, services, customers and customer groups represented?



Definitions

- Customer: Any person or organization who receives or uses the products, services or information provided by a unit of the NCDOT (Supplier)
- Supplier: Any unit of the NCDOT that provides a product, service or information for use



The Issues

- Developing a customized assessment instrument for each customer-supplier combination in the NCDOT is too costly and time-consuming
- Using a standardized assessment instrument for all customer-supplier combinations will not provide enough detailed information to be actionable



Other Hurdles

- Identifying the units that will participate
- Developing a list of customers (internal and external) for each participating unit
- Determining how many customers or customer groups should be solicited for input



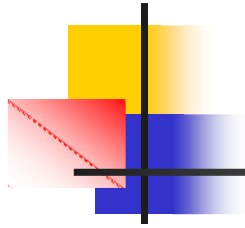
Hurdles - Continued

- Developing a workable technical solution that makes the process manageable
- Constructing the database and managing the data
- Some customers (internal or external) may be contacted to provide feedback on multiple NCDOT suppliers



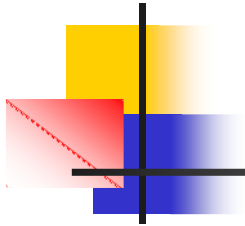
Consideration

- The potential for saturation exists if too many internal customer surveys are conducted simultaneously – this will need to be managed



Hurdles - Continued

- Differences in unit scores may be due to dramatic differences in products and services provided as well as number and type of customers served
- Some customers may have a difficult time distinguishing between different units of the NCDOT



Recommendations

- Use a simple, standardized survey instrument to get basic customer feedback
- Identify the “Top 5” customers or customer groups for each unit as a starting point
- Conduct the survey
- Provide additional assistance to those units needing it



The Concept – Phase 1

- Conduct a basic survey of external and internal customers using a standard instrument via internet or paper to determine how they “feel” about the products or services provided by a business unit as well as the relationship they have with that unit



The Concept – Phase 2

- Follow the initial assessment with a closer look at those business units with the greatest opportunity to improve



Data Collection Methods

- Email a link to a web-based survey (preferred method)
- Paper survey mailed to customers (DMV a candidate for this method)
- Paper survey handed to customers (e.g. Ferry Division)
- Face-to-face interviews are a possibility if units have the resources to do it



The Approach

- Build a list of participating units
- Conduct workshops for Directors / Managers of participating units
- Identify customers for each unit
- Develop a database of customer email addresses / postal mail addresses / telephone numbers by unit
- Conduct survey



Approach - Continued

- Provide each business unit an objective set of measures
- (Act on results)
- Identify criteria or cutoff for doing more detailed analysis
- Follow up with units needing to look deeper



Consideration

- The cutoff for follow up will not be apparent until after implementing the survey and doing the analysis



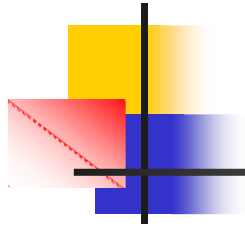
Workshop Content

- Process Overview
- Identify Customers / Customer Groups
- Establish expectations for developing a list of email addresses, mailing addresses, or telephone numbers for customers (Homework!)



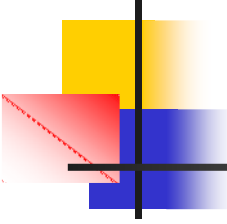
Consideration

- Since there is such a wide variety of customer-supplier relationships, some Directors / Managers may need assistance identifying appropriate customer groupings



Survey Questions

- Propose asking two Closed-End questions to establish a quantitative measure of customer satisfaction
- Further propose asking one Open-Ended question to capture qualitative information that can be acted upon



Closed-End Question – Satisfaction with Services / Products / Information

“Using a scale of 1 to 7, where 1 means you are *not at all satisfied* and 7 means you are *very well satisfied*, please rate your overall level of satisfaction with the service / product / information provided to you by this NCDOT unit.”



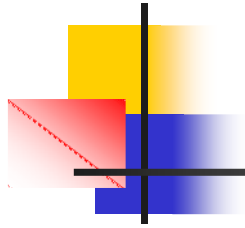
Closed-End Question – Relationship with Unit

“Using a scale of 1 to 7, where 1 means you have had a generally negative experience and 7 means you have had a highly positive experience, please rate your overall experience working with this NCDOT unit.”



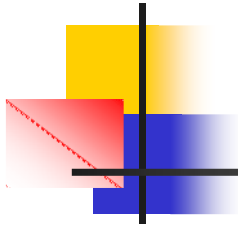
Open-Ended Question – Service Improvement Opportunities

“In what ways can this NCDOT unit better serve your customer needs?”



Customer Groups

- Who Do You Serve?
- Can These Customers Be Broken Into Distinct Groups?
- Let's Begin Identifying Your Customer Groups Using the Customer Group Handout



Customer Group Handout

In the spaces below you are being asked to provide information about the customers you serve. Before getting started, please indicate the division, branch, unit, or section of NCDOT for which you are reporting this information. Then, please list the various customer groups you serve, whether they are internal or external customers, approximately how many customers belong to each group, and the typical method you use to communicate with them. When you have completed this form, click on the "Customer Listing" tab at the bottom of the page.

Division:	
Branch:	
Unit:	
Section:	

Check Box	Customer Groups	Please indicate whether this is an internal or external customer group by placing an "I" or "E" in the space below.	Approximately how many individual customers are in this customer group?	Please indicate the types of contact information you have for the "typical" customer in this customer group.		
				Telephone	E-mail	Mailing address
<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



“Top 5” Customer Groups

- 5 is a starting point – some units may survey more, some less
- The objective is to make the task manageable and collect useful data that will make it possible for units to improve their service to all customers



Choosing Your “Top 5”

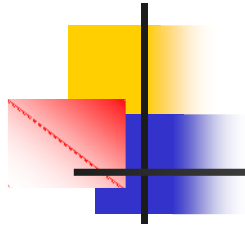
Considerations:

- Volume of work
- Number of transactions
- Dollar expenditures
- Significance of projects
- Frequency of contact
- Uniqueness
- Etc.



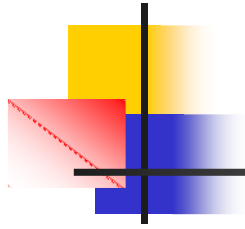
Questions for Pilot Units

- Should the choice of “Top 5” customer groups be validated by a higher level manager?
- Can we share your lists of customer groups and “Top 5” with other department managers as a learning tool?



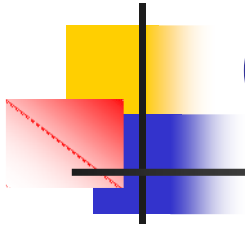
Establishing the Database

- Email addresses, postal mail addresses, or telephone numbers will be needed for each customer in the group
- In some cases, all customers can be surveyed. In others, sampling will be necessary (e.g. DMV)



Establishing the Database

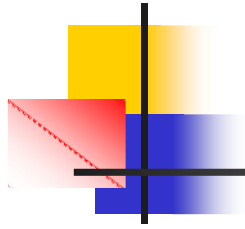
- You will each be provided with an Excel Spreadsheet that can be used to input the data
- Refer to the Customer Listing Handout



Customer Listing Handout

In this section you will provide specific information about individual customers. But first, you should return to the "Customer Groups" worksheet by clicking the tab at the bottom of the page. Among all customer groups that you listed, please select the five groups that are considered your organization's top customers in terms of [xxxxxx]. Place a check in the check box beside the five customer groups you have selected by clicking on the box. Afterwards, return to this worksheet and begin listing the specific customer information for all customers within each of your five customer groups.

Customer Group	Customer Name	Address	Email	Phone



Establishing the Database

- Expectations?
- Exceptions?
- Due date for returning the completed spreadsheet?



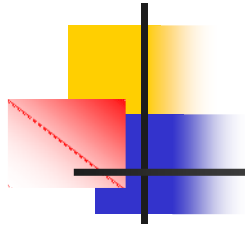
What Do We Do With The Data Once We Have It?

- Establish a composite Customer Satisfaction score for each unit
- Provide business unit managers with individual question scores and composite score by customer group
- Provide business unit managers with a list of customer comments by customer group



Follow Up

- Determine what the units with the highest scores are doing differently
- Provide assistance to those units with the greatest opportunity to improve
- Urge business unit managers to act on the comments received from customers
- Conduct the survey again in one year to determine if the scores have moved (hopefully up!)



Strategies for Improvement

- Start with the Customer Group with the lowest composite score
- Start with the area with the lowest score (service / product / information vs. relationship)
- Take action on comments received from that Customer group

Demographics

Unit Designation; County of Residence

Closed-End Questions for Customer Service Assessment

Satisfaction with products, services, information: “Using a scale of 1 to 7, where 1 means you are *not at all satisfied* and 7 means you are *very well satisfied*, please rate your overall level of satisfaction with the service / product / information provided to you by this NCDOT unit.”

Experience working with the unit: “Using a scale of 1 to 7, where 1 means you have had a generally negative experience and 7 means you have had a highly positive experience, please rate your overall experience working with this NCDOT unit.”

Customer Service Dimensions:

Choose the three (3) customer service dimensions of greatest importance to you when working with this unit:

Wait Time to be served initially / Timely completion of the transaction

Knowledgeable Staff

Accuracy of Information / Quality of Service or Product provided

Fair Treatment

Trust

Courtesy and respect; treated as a valued customer

Effective / successful problem resolution

User friendliness, accessibility, condition, and comfort of NCDOT buildings and facilities

Accountability; follows through on commitments

Communication; keeps customer informed

Clear, understandable process

Responsive to customer needs

Other₁

Open-Ended Question for Customer Service Assessment

Better Service: “In what ways can this NCDOT unit better serve your customer needs?”